

GenCore version 5.1.6  
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OM protein - protein search, using sw model

Run on: September 1, 2004, 17:47:11 ; Search time 127 Seconds  
(without alignments)  
1208.057 Million cell updates/sec

Title: US-09-759-207-2

Perfect score: 2842

Sequence: 1 MLRSKPAIPPLMLLGP.....LPAFYSFVIRNAKVAACI 543

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Seatched: 1586107 seqs, 282547505 residues

Total number of hits satisfying chosen parameters: 1586107

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Listing first 75 summaries

Database :

A\_Geneseq\_29Jan04:.\*  
1: geneseqp1980s:.\*  
2: geneseqp1980s:.\*  
3: geneseqp2000s:.\*  
4: geneseqp2001s:.\*  
5: geneseqp2002s:.\*  
6: geneseqp2003as:.\*  
7: geneseqp2003bs:.\*  
8: geneseqp2004s:.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	2842	100.0	543	2 AAY02345	Aay02345 A human h
2	2842	100.0	543	3 AAY57590	Aay57590 Human hep
3	2842	100.0	543	3 AAB08849	Aab08849 Amino aci
4	2842	100.0	543	3 AAY52990	Aay52990 Human hep
5	2842	100.0	543	4 AAY97635	Aay97635 Human hep
6	2842	100.0	543	5 ABB07813	Abb07813 Human hep
7	2842	100.0	592	2 AAY02346	Aay02346 A human h
8	2842	100.0	592	3 AAB08850	Aab08850 Amino aci
9	2838	99.9	543	2 AAY17082	Aay17082 Human hep
10	2838	99.9	543	4 AAB86206	Aab86206 Human hep
11	2838	99.9	543	7 ADD18950	Add18950 Human dis
12	2838	99.9	588	2 AAY30124	Aay30124 A human p
13	2826	99.4	543	4 AAB88361	Aab88361 Human mem
14	2817	99.1	545	6 ABP56822	Abp56822 Human hep
15	2817	99.1	545	7 ADE16012	Ade16012 G-coupled
16	2764	97.3	530	2 AAY34173	Aay34173 Human pre
17	2737	96.3	532	2 AAY17083	Aay17083 Seq ID No
18	2673.5	94.1	527	5 ABB07815	Abb07815 Chicken s
19	2146	75.5	535	5 AAB08851	Aab08851 A murine
20	2146	75.5	535	5 ABB07811	Abb07811 Mouse hep
21	2123	74.7	536	5 ABB07812	Abb07812 Rat hep
22	1645.5	57.9	523	5 ABB07814	Abb07814 Chicken h
23	1614	56.8	380	2 AAY17085	Aay17085 Rat hep
24	1602	56.4	380	2 AAY17084	Aay17084 Mouse hep
25	1154.5	40.6	592	4 AAY97632	Aay97632 Human hep

#### ALIGNMENTS

26	1154.5	40.6	592	4	AAU07424	Aau07424 Human hep
27	1148.5	40.4	592	4	AA881062	Aab81062 Human Hep
28	1147.5	40.4	592	4	AA885215	Aab85215 Hepatane
29	1142.5	40.2	582	5	AAE18326	Aae18326 Human hep
30	1112.5	39.1	538	4	AAY97633	Aay97633 Human hep
31	1106.5	38.9	528	5	AAE18327	Aae18327 Human hep
32	936.5	33.0	534	4	AA855216	AA855216 Hepatane
33	936.5	33.0	534	5	ABP69310	Abp69310 Human pol
34	936.5	33.0	534	5	AAM50327	Aam50327 Human pre
35	927.5	32.6	492	4	AA884664	Aab84664 Amino aci
36	897.5	31.6	480	4	AA97634	Aay97634 Human hep
37	897.5	31.6	480	4	AAU07418	Aau07418 Novel hum
38	897.5	31.6	480	4	AA855217	AA855217 Hepatane
39	892.5	31.4	470	5	AAE18328	Aae18328 Human hep
40	891.5	31.4	439	4	AAU07423	Aau07423 Human hep
41	788	27.7	331	5	AAM50383	Aam50383 Human hep
42	663	23.3	488	4	AA831469	Aab31469 Amino aci
43	645	22.7	488	4	AA831470	Aab31470 Amino aci
44	642	22.6	488	4	AA831472	Aab31472 Amino aci
45	632	21.9	488	4	AA831471	Aab31471 Amino aci
46	528.5	18.6	214	4	AAM99905	Aam99905 Human exc
47	528.5	18.6	214	4	AAW43704	Aam43704 Human bla
48	338.5	11.9	156	4	AA65963	Aag5963 Human hep
49	277.5	9.8	256	3	AA613479	Aag13479 Arabidops
50	261	9.2	262	4	AAW24147	Aam24147 Human EST
51	235	8.3	50	5	AAM50385	Aam50385 Mouse hep
52	218	7.7	112	4	AAU07425	Aau07425 Human hep
53	206	7.2	38	2	AA934186	Aay34186 Human pre
54	178	6.3	91	5	AAM50384	Aam50384 Rat hep
55	173.5	6.1	115	4	AA885218	AA885218 Mouse hep
56	160	5.6	935	4	ABP69219	Abp69219 Drosophi
57	159	5.6	32	2	AA934175	Aay34175 Human pre
58	152.5	5.4	253	3	AA643712	Aag43712 Arabidops
59	152.5	5.4	257	3	AA643711	Aag43711 Arabidops
60	152.5	5.4	279	3	AA643710	Aag43710 Arabidops
61	144	5.1	28	2	AA934177	Aay34177 Human pre
62	139.5	4.9	98	5	ABP10273	Abp10273 Human ORF
63	136.5	4.8	225	3	AA613478	Aag13478 Arabidops
64	136.5	4.8	247	3	AA613477	Aag13477 Arabidops
65	135.5	4.8	137	4	AA65961	Aag5961 Human hep
66	135.5	4.8	159	4	AA65964	Aag5964 Human hep
67	123	4.3	24	2	AA934189	Aay34189 Human pre
68	121.5	4.3	396	2	AAW23327	Aam23327 Meripilus
69	115.5	4.1	29	6	ABP66031	Abp66031 Human hep
70	113.5	4.0	617	2	AAK42391	Aat42391 Chicago 2
71	111.5	3.9	722	6	ABU27630	Abu27630 Protein e
72	111	3.9	21	2	AA934178	Aay34178 Human pre
73	111	3.9	444	2	AAK22143	Aat22143 GST:NMNV
74	111	3.9	445	2	AAK22143	Aat22143 GST:NMNV
75	110	3.9	30	6	ABP66032	Abp66032 Human hep

RESULT 1  
AAY02345  
ID AAY02345 standard; protein; 543 AA.

AC AAY02345;  
XX  
XX 09-JUL-1999 (first entry)  
DT  
XX  
XX A human heparanase protein.  
DE  
XX Heparanase; hp; modulator; heparin-binding growth factor;  
KW cellular response; cytokine; cell interaction; plasma lipoprotein;  
KW neurodegenerative plaque; infection; disintegration;  
KW atherosclerosis; inflammation; neurodegenerative disease; neutralise;  
KW plasma heparin; micrometastasis; autoimmune lesion; renal failure.  
XX  
XX Homo sapiens.

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XX  MO9911798-A1.
XX  11-MAR-1999.
XX  31-AUG-1998; 98WO-US017954.
XX  02-SEP-1997; 97US-00922170.
XX  02-JUL-1998; 98US-00109386.
XX  (INST-) INSIGHT STRATEGY & MARKETING LTD.
XX  (HADA-) HADAST MEDICAL RES SERVICES & DEV.
XX  (FRIE/) FRIEDMAN M M.
XX  Pecker I, Vlodavsky I, Feinstein E;
XX  WPI; 1999-302255/25.
XX  N-PSDB; AAX35648.
XX  New human polynucleotide useful for treating angiogenesis, restenosis,
XX  and inflammation.
XX  )
XX  Claim 6; Fig 1; 63pp; English.
XX  The specification describes a polypeptide having heparanase (hp)
XX  activity. The recombinant protein is used as a modulator of heparin-
XX  binding growth factors, cellular responses to heparin-binding growth
XX  factors and cytokines, cell interaction with plasma lipoproteins,
XX  cellular susceptibility to viral, protozoal and bacterial infections or
XX  disintegration of neurodegenerative plaques. Heparanase may be useful for
XX  conditions such as wound healing, angiogenesis, restenosis,
XX  atherosclerosis, inflammation, neurodegenerative diseases, and viral
XX  infections. Mammalian heparanase can be used to neutralize plasma
XX  heparin, and anti-heparanase antibodies may be applied for
XX  immunodetection and diagnosis of micrometastases, autoimmune lesions, and
XX  renal failure in biopsy specimens, plasma samples, and body fluids. The
XX  present sequence represents human heparanase
XX
XX  Sequence 543 AA:
XX
Query Match 100.0%; Score 2842; DB 2; Length 543;
Best Local Similarity 100.0%; Pred. No. 3.8e-273;
Matches 543; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 MLRSKPALEPPMLLLGLPLGPGALPRPAQADVDVLDFTQEPHLVSPFSFVSYT 60
DB 1 MLRSKPALEPPMLLLGLPLGPGALPRPAQADVDVLDFTQEPHLVSPFSFVSYT 60
QY 61 IDANLATDPRFLLILGSPKRLTLARGLSPAYLRFGGTKTDFLLFDPKKESTFEERSYWG 120
DB 61 IDANLATDPRFLLILGSPKRLTLARGLSPAYLRFGGTKTDFLLFDPKKESTFEERSYWG 120
QY 121 QVNVODICKGSIPDVBEKRLLEMPYOEQLLEHVOKKRKNSTYSRSSVDVLYTFANCS 180
DB 121 QVNVODICKGSIPDVBEKRLLEMPYOEQLLEHVOKKRKNSTYSRSSVDVLYTFANCS 180
QY 121 QVNVODICKGSIPDVBEKRLLEMPYOEQLLEHVOKKRKNSTYSRSSVDVLYTFANCS 180
DB 121 QVNVODICKGSIPDVBEKRLLEMPYOEQLLEHVOKKRKNSTYSRSSVDVLYTFANCS 180
QY 181 GLDLIFGLNALTADTLQWNSNAQQLLDYCSKGVNISMELNENPSPFKKADIFINGS 240
DB 181 GLDLIFGLNALTADTLQWNSNAQQLLDYCSKGVNISMELNENPSPFKKADIFINGS 240
QY 241 QLEGEDYQLHLKRLKSTFKNAKLYGPDVQPRKRTAMLSFKAGGEVIDSYTMHHYVL 300
DB 241 QLEGEDYQLHLKRLKSTFKNAKLYGPDVQPRKRTAMLSFKAGGEVIDSYTMHHYVL 300
QY 301 NGRTATREDFLNDVDLFISSVQKVFQVVESTRPGKWLGETSSAYGGAPLLSDTPA 360
DB 301 NGRTATREDFLNDVDLFISSVQKVFQVVESTRPGKWLGETSSAYGGAPLLSDTPA 360
QY 361 AGEMWLDKGLSLRMGIEVVMROVFPAGNYHLVDENFDLPDYMVLSEPKKLVGTRKVL 420
DB 361 AGEMWLDKGLSLRMGIEVVMROVFPAGNYHLVDENFDLPDYMVLSEPKKLVGTRKVL 420
QY 421 ASVOGSKRRKRLVYLHCTNTDNPBYKGGDLTLVAINLHNTKYLRLPYPFSNKQVDKXYLL 480

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DB 421 ASVOGSKRRKRLVYLHCTNTDNPBYKGGDLTLVAINLHNTKYLRLPYPFSNKQVDKXYLL 480
QY 481 RPLGPHGLSKSVQNLGLTKRVDDOTLPLMEKPLRPSSSLGPAFVSFFVINAKYA 540
DB 481 RPLGPHGLSKSVQNLGLTKRVDDOTLPLMEKPLRPSSSLGPAFVSFFVINAKYA 540
QY 541 ACT 543
DB 541 ACT 543
DB 541 ACT 543

RESULT 2
AA57590
ID AA57590 standard; protein; 543 AA.
XX
AC AA57590;
XX
DT 02-MAR-2000 (first entry)
XX
DE Human heparanase.
XX
KW Human; heparanase; hpa; genetic modification; expression; anticancer;
KW angiogenesis; anti-angiogenic; antiproliferative; antiviral; antitumor;
KW anti-atherosclerotic; anti-inflammatory; antineurodegeneration;
KW heparan sulphate; heparin-binding growth factor; tumour angiogenesis;
KW metastasis; wound healing; restenosis; atherosclerosis; inflammation;
KW neurodegeneration; viral infection; cystic fibrosis; cancer; diagnosis;
KW micrometastasis; autoimmune lesion; kidney failure.
XX
OS Homo sapiens.
XX
PN WO957244-A1.
XX
PD 11-NOV-1999.
XX
PF 29-APR-1999; 99WO-US009256.
XX
PR 01-MAY-1998; 98US-00071618.
XX
PR 02-MAR-1999; 99US-00260038.
XX
PA (INST-) INSIGHT STRATEGY & MARKETING LTD.
XX
PA (FRIE/) FRIEDMAN M M.
XX
PI Ben-Artzi H, Ayal-HersHKovitz M, Yacoby-Zeevi O, Pecker I;
PI Peleg Y, Shlomi Y;
XX
DR WPI; 2000-062144/05.
XX
DR N-PSDB; AAX39195.
XX
PT Engineered cells that express recombinant heparanase, useful
PT therapeutically, e.g. for treating angiogenesis and to screen for
PT specific inhibitors, potential anticancer agents.
XX
PS Claim 3; Page 107-109; 118pp; English.
XX
XX
The present invention describes genetically modified cells (A) containing
a polynucleotide (I) that encodes a polypeptide with heparanase activity,
and express recombinant heparanase (II). Heparanase cleaves heparan
sulphate (HS) at specific intrachain sites, resulting in release of
heparin-binding growth factors, enzymes and proteins that are sequestered
by HS in basement membranes, extracellular matrix or cell surfaces. It
may also be implicated in tumour angiogenesis and metastases. (II) is
potentially useful in wound healing and for treating angiogenesis,
restenosis, atherosclerosis, inflammation, neurodegeneration, viral
infection and cystic fibrosis. It can also be used to neutralise heparin
(an alternative to protamine) and to screen for specific inhibitors
(potentially useful for treating cancer and metastases). Antibodies
raised against (II) are used for immunodetection and diagnosis of
micrometastases, autoimmune lesions and kidney failure. (A) provide (II)
in large quantities, in a form that is homogeneously processed and
activated/neutralised by a dedicated protease. The present sequence
represents human heparanase

```

XX SO Sequence 543 AA:  
 Query Match 100.0%; Score 2842; DB 3; Length 543;  
 Best Local Similarity 100.0%; Pred. No. 3.8e-273;  
 Matches 543; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MLRSKPALPPMLMLLGLPLSPGALPRPAQADVDLDFPQEPHLVSPSLSVT 60  
 |||||  
 DB 1 MLRSKPALPPMLMLLGLPLSPGALPRPAQADVDLDFPQEPHLVSPSLSVT 60  
 61 IDANLATDPRFLILGSPKRLTARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYMS 120  
 |||||  
 DB 61 IDANLATDPRFLILGSPKRLTARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYMS 120  
 121 QVNODICKYGISPPDVEEKLRLMPYQEQLLREHYQKKFKNSTYSRSSVDVLYTFPANC 180  
 |||||  
 DB 121 QVNODICKYGISPPDVEEKLRLMPYQEQLLREHYQKKFKNSTYSRSSVDVLYTFPANC 180  
 121 GDLIFGLNALRTADLQWSSNAQLLDYCSKGNYSWELGNEPNSFLKADIFINCS 240  
 |||||  
 DB 181 GDLIFGLNALRTADLQWSSNAQLLDYCSKGNYSWELGNEPNSFLKADIFINCS 240  
 181 IDANLATDPRFLILGSPKRLTARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYMS 240  
 |||||  
 QY 241 QLGEDYIQLHKLRLKSTFKNAKLYGPDVGQPRKRTAKMLKSLKAGEVIDSVTWHYYL 300  
 |||||  
 DB 241 QLGEDYIQLHKLRLKSTFKNAKLYGPDVGQPRKRTAKMLKSLKAGEVIDSVTWHYYL 300  
 301 NGRTATREDPLNDVDLIFISSVQKVFQVVESTRPGKRWLGERTSAYGGAPLSDTFA 360  
 |||||  
 DB 301 NGRTATREDPLNDVDLIFISSVQKVFQVVESTRPGKRWLGERTSAYGGAPLSDTFA 360  
 361 AGFMWLDKGLSARMGIEVVMROVFRGAGNYHLVDENFDPPLPKLVGTRKVL 420  
 |||||  
 DB 361 AGFMWLDKGLSARMGIEVVMROVFRGAGNYHLVDENFDPPLPKLVGTRKVL 420  
 421 ASVQSGKRRKRLRYLHCTNTDNPYKEGDLTLVAINALHTKTLRLPYPSNKOVDKYL 480  
 |||||  
 DB 421 ASVQSGKRRKRLRYLHCTNTDNPYKEGDLTLVAINALHTKTLRLPYPSNKOVDKYL 480  
 421 RPLGPHGLLSKSVQNLGLTKMVDQTLPLMEKPLRPSSGLPAFSYSFPVIRAKVA 540  
 |||||  
 QY 481 RPLGPHGLLSKSVQNLGLTKMVDQTLPLMEKPLRPSSGLPAFSYSFPVIRAKVA 540  
 541 ACT 543  
 |||||  
 DB 541 ACT 543

RESULT 3  
 AAB08849 ID AAB08849 standard; protein; 543 AA.  
 AC AAB08849;  
 XX  
 DT 15-JAN-2001 (first entry)  
 XX  
 DE Amino acid sequence of a human heparanase polypeptide.  
 XX  
 KW Human; heparanase; gene therapy; tumour; inflammation; autoimmunity;  
 KW heparin-binding growth factor; cytokine; neurodegenerative plaque;  
 KW wound healing; infection; burn; angiogenesis; restenosis;  
 KW atherosclerosis; inflammation; neurodegenerative diseases;  
 KW Gerstmann-Strausler Syndrome; Creutzfeldt-Jakob disease.  
 XX  
 OS Homo sapiens.  
 XX  
 PN WO200052178-A1.  
 XX  
 PD 08-SEP-2000.  
 XX  
 PF 14-FEB-2000; 2000WO-US003542.  
 XX  
 PR 01-MAR-1999; 99US-00258892.

XX (INST-) INSIGHT STRATEGY & MARKETING LTD.  
 PA (HADA-) HADASTI MEDICAL RES SERVICES & DEV.  
 PA (FRIE/) FRIEDMAN M M.  
 XX  
 PI Pecker I, Vlodavsky I, Feinstein E;  
 XX  
 DR WPI: 2000-579289/54.  
 DR N-PSDB; AAA75051.  
 XX  
 PT New polynucleotides encoding a polypeptide having heparanase activity,  
 PT useful in wound healing and in gene therapy, particularly in treating  
 PT tumor, inflammation, autoimmunity, neurodegenerative diseases.  
 XX  
 PS Claim 22; Fig 1; 152pp; English.

The present sequence represents a human protein with heparanase catalytic activity. The heparanase (hpa) polynucleotide is useful in gene therapy, particularly in treating tumour, inflammation or autoimmunity. CC Particularly, the polynucleotide is useful in modulating the CC bioavailability of heparin-binding growth factors, cellular responses to CC heparin-binding growth factors (e.g. bFGF) and cytokines (e.g. CC interleukin (IL)-8), cell interaction with plasma lipoproteins, cellular CC susceptibility to certain viral and some bacterial and protozoa CC infections, or disintegration of neurodegenerative plaques. The CC polynucleotide is also useful in wound healing (e.g. thermal, chemical or CC radiation burns), and in the treatment of angiogenesis, restenosis, CC atherosclerosis, inflammation, neurodegenerative diseases (Gerstmann- CC Strausler Syndrome or Creutzfeldt-Jakob disease), and some viral, CC bacterial or protozoa infections

SO Sequence 543 AA:  
 Query Match 100.0%; Score 2842; DB 3; Length 543;  
 Best Local Similarity 100.0%; Pred. No. 3.8e-273;  
 Matches 543; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MLRSKPALPPMLMLLGLPLSPGALPRPAQADVDLDFPQEPHLVSPSLSVT 60  
 |||||  
 DB 1 MLRSKPALPPMLMLLGLPLSPGALPRPAQADVDLDFPQEPHLVSPSLSVT 60  
 61 IDANLATDPRFLILGSPKRLTARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYMS 120  
 |||||  
 DB 61 IDANLATDPRFLILGSPKRLTARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYMS 120  
 121 QVNODICKYGISPPDVEEKLRLMPYQEQLLREHYQKKFKNSTYSRSSVDVLYTFPANC 180  
 |||||  
 DB 121 QVNODICKYGISPPDVEEKLRLMPYQEQLLREHYQKKFKNSTYSRSSVDVLYTFPANC 180  
 121 QVNODICKYGISPPDVEEKLRLMPYQEQLLREHYQKKFKNSTYSRSSVDVLYTFPANC 180  
 181 GDLIFGLNALRTADLQWSSNAQLLDYCSKGNYSWELGNEPNSFLKADIFINCS 240  
 |||||  
 DB 181 GDLIFGLNALRTADLQWSSNAQLLDYCSKGNYSWELGNEPNSFLKADIFINCS 240  
 181 IDANLATDPRFLILGSPKRLTARGLSPAYLRFGGTKTDFLIFDPKKESTFEERSYMS 240  
 |||||  
 QY 241 QLGEDYIQLHKLRLKSTFKNAKLYGPDVGQPRKRTAKMLKSLKAGEVIDSVTWHYYL 300  
 |||||  
 DB 241 QLGEDYIQLHKLRLKSTFKNAKLYGPDVGQPRKRTAKMLKSLKAGEVIDSVTWHYYL 300  
 301 NGRTATREDPLNDVDLIFISSVQKVFQVVESTRPGKRWLGERTSAYGGAPLSDTFA 360  
 |||||  
 QY 301 NGRTATREDPLNDVDLIFISSVQKVFQVVESTRPGKRWLGERTSAYGGAPLSDTFA 360  
 361 AGFMWLDKGLSARMGIEVVMROVFRGAGNYHLVDENFDPPLPKLVGTRKVL 420  
 |||||  
 DB 361 AGFMWLDKGLSARMGIEVVMROVFRGAGNYHLVDENFDPPLPKLVGTRKVL 420  
 421 ASVQSGKRRKRLRYLHCTNTDNPYKEGDLTLVAINALHTKTLRLPYPSNKOVDKYL 480  
 |||||  
 QY 481 RPLGPHGLLSKSVQNLGLTKMVDQTLPLMEKPLRPSSGLPAFSYSFPVIRAKVA 540  
 |||||  
 DB 481 RPLGPHGLLSKSVQNLGLTKMVDQTLPLMEKPLRPSSGLPAFSYSFPVIRAKVA 540

QY 541 ACI 543  
 DB 541 ACI 543

RESULT 4  
 AA52990  
 ID AA52990 standard; protein; 543 AA.

XX AA52990;

XX 21-FEB-2000 (first entry)

XX Human heparanase protein sequence.

DE Human heparanase; hpa; diagnosis; therapy; tumour; cyrostatic;  
 KW Human; heparanase; hpa; diagnosis; therapy; tumour; cyrostatic;  
 KW antidiabetic; immunomodulatory; anti-inflammatory; nephrotoxic;  
 KW mesothelioma; adenocarcinoma; squamous cell carcinoma; teratocarcinoma;  
 KW mesothelioma; melanoma; lymphoma; leukemia; cancer; sepsis; diabetes;  
 KW inflammation; haemorrhagic nephritis; nephrotic syndrome;  
 KW autoimmune disease; anticancer; kidney disease.

XX Homo sapiens.

XX WO957153-A1.

XX 11-NOV-1999.

XX 29-APR-1999; 99MO-US009255.

XX 01-MAY-1998; 98US-00071739.

XX (INSI-) INSIGHT STRATEGY & MARKETING LTD.

PA (HADA-) HADASIT MEDICAL RES SERVICES & DEV.  
 (FRIE/) FRIEDMAN M M.

PI Pecker I, Vlodevsky I, Friedman Y, Perets T;

XX WPI; 2000-052944/04.

DR N-PSDB; AA233290.

PT Heparanase-specific molecular probes useful for diagnosis and treatment,  
 e.g. of tumors, and for targeted drug delivery.

XX Example; Page 81-82; 90pp; English.

CC The present invention describes heparanase-specific molecular probes,  
 CC useful for methods of detecting heparanase in situ. The probes and anti-  
 CC heparanase antibodies are used to detect or quantify the expression of  
 CC heparanase, for diagnosis and monitoring of diseases (especially  
 CC metastasis), for treatment of heparanase-associated diseases (e.g.  
 CC tumours, (adeno)carcinoma, squamous cell carcinoma, teratocarcinoma,  
 CC mesothelioma, melanoma, lymphoma or leukemia, a solid cancer (or its  
 CC metastases) derived from liver, prostate, bladder, breast, ovary, cervix,  
 CC colon, skin, intestine, stomach, uterus and pancreas, kidney disease,  
 CC diabetes and inflammation, haemorrhagic nephritis, nephrotic syndrome,  
 CC sepsis and inflammatory or autoimmune disease), for targeted drug  
 CC delivery (e.g. of anticancer agents) and as research reagents. The  
 CC present sequence represents human heparanase, which is used in the  
 CC exemplification of the present invention

XX Sequence 543 AA;

Query Match 100.0%; Score 2842; DB 3; Length 543;

Best Local Similarity 100.0%; Pred. No. 3.8e-273; Indels 0; Gaps 0;

Matches 543; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MLRSKRALPPMLILGPIGPGALPRPAQDVLDLFFTEPLHLVSPFSVTV 60  
 DB 1 MLRSKRALPPMLILGPIGPGALPRPAQDVLDLFFTEPLHLVSPFSVTV 60  
 61 IDANLATDPRFLILGSPKRLTARGLSPAYLRFGGTDTDLIPDPKKESTFEERSYMQS 120

DB 61 IDANLATDPRFLILGSPKRLTARGLSPAYLRFGGTDTDLIPDPKKESTFEERSYMQS 120  
 QY 121 QVNODICKYGSIPDVEEKLRLWMPYQEOQLLRHHYOKKFNKSTYSRSSVDVLYTPANCS 180  
 DB 121 QVNODICKYGSIPDVEEKLRLWMPYQEOQLLRHHYOKKFNKSTYSRSSVDVLYTPANCS 180  
 QY 181 GLDLIFGLNALRTADLQWSSNAQLLDYCSSKGYNI SWEIGNEPNSFLKKADIFINGS 240  
 DB 181 GLDLIFGLNALRTADLQWSSNAQLLDYCSSKGYNI SWEIGNEPNSFLKKADIFINGS 240  
 QY 241 QIGEDYIQLHKLRLKSTFPAKLYGPDVQOPRRKTAKLSPLKXGCEYIDSVTHHYLL 300  
 DB 241 QIGEDYIQLHKLRLKSTFPAKLYGPDVQOPRRKTAKLSPLKXGCEYIDSVTHHYLL 300  
 QY 301 NGRTATREDPLNDVDLIFISSVQVFOVESSTRPGKKVWLGETSSAYGGAPLLSDFPA 360  
 DB 301 NGRTATREDPLNDVDLIFISSVQVFOVESSTRPGKKVWLGETSSAYGGAPLLSDFPA 360  
 QY 361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLDENPDPLPDYWLISLLFKLVGTXYLM 420  
 DB 361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHLDENPDPLPDYWLISLLFKLVGTXYLM 420  
 QY 421 ASVQSKRRKRLRYLHCTNTDNPYKESDPLTYAINLHNTYKLRPLPYFSKQVDKYL 480  
 DB 421 ASVQSKRRKRLRYLHCTNTDNPYKESDPLTYAINLHNTYKLRPLPYFSKQVDKYL 480  
 QY 481 RPLGPHGLSKSVQNLGLTLKNVDDQTLPLMEKPLRPGSSGLPAFSYFVIRNAKVA 540  
 DB 481 RPLGPHGLSKSVQNLGLTLKNVDDQTLPLMEKPLRPGSSGLPAFSYFVIRNAKVA 540  
 QY 541 ACI 543  
 DB 541 ACI 543

RESULT 5  
 AA57635  
 ID AA57635 standard; protein; 543 AA.

XX AA57635;

XX 20-APR-2001 (first entry)

XX Human heparanase protein sequence.

XX Heparanase; hnp1; wound healing; angiogenesis; restenosis; Scrape;  
 KW atherosclerosis; inflammation; pulmonary disease; Alzheimer's disease;  
 KW neurodegenerative disease; Creutzfeldt-Jakob disease; viral infection;  
 KW gene therapy; human.

OS Homo sapiens.

PN WO200100643-A2.

PD 04-JAN-2001.

PF 19-JUN-2000; 2000MO-IL000358.

PR 25-JUN-1999; 99US-0140801P.

XX (INSI-) INSIGHT STRATEGY & MARKETING LTD.

PA Pecker I, Michal I, Itzhaki H;

PI WPI; 2001-137930/14.

PT New polynucleotides and polypeptides that are distantly homologous to  
 PT heparanase, useful in wound healing, as well as in gene therapy protocols  
 PT for angiogenesis, restenosis, atherosclerosis, or inflammation.

PS Disclosure; Page 64-65; 67pp; English.

XX This sequence represents a heparanase of the invention. The heparanase

CC DNA and protein sequences are useful in wound healing, angiogenesis, CC restenosis, atherosclerosis, inflammation, pulmonary diseases, CC neurodegenerative diseases (such as Scurate, Alzheimer's disease, and CC Creutzfeldt-Jakob disease) or viral infections. The heparanase coding CC sequence is particularly useful in gene therapy

XX Sequence 543 AA;

Query Match 100.0%; Score 2842; DB 4; Length 543;  
Best Local Similarity 100.0%; Pred. No. 3.8e-273;  
Matches 543; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy	1	MLRSKRALPPMLMLLLGPIGLSPGALPRPAQDVVDLDFPTOEPLHLVSPFLSVT	60
Db	1	MLRSKRALPPMLMLLLGPIGLSPGALPRPAQDVVDLDFPTOEPLHLVSPFLSVT	60
Qy	61	IDANLATDPRFLILGSPKRLTLARGSPAYLRFSGTKTDPLIFDPKKESTFEERSYWG	120
Db	61	IDANLATDPRFLILGSPKRLTLARGSPAYLRFSGTKTDPLIFDPKKESTFEERSYWG	120
Qy	121	QVNNODICKYGSIPPDVEEKLRLMPYQEOULLREHYOKKFKNSTYRSRSDVLYTPANC	180
Db	121	QVNNODICKYGSIPPDVEEKLRLMPYQEOULLREHYOKKFKNSTYRSRSDVLYTPANC	180
Qy	181	GLDLIFGLNALRLTADLQWNSNAQLLDYCSSKGYNISWELGNEBNSFLKADIFINGS	240
Db	181	GLDLIFGLNALRLTADLQWNSNAQLLDYCSSKGYNISWELGNEBNSFLKADIFINGS	240
Qy	241	QLGEDYIQLHLKRLKSTFPKNAKLYGPDVQOPRRKTKAMLSFLKAGGEVIDSYTMHHY	300
Db	241	QLGEDYIQLHLKRLKSTFPKNAKLYGPDVQOPRRKTKAMLSFLKAGGEVIDSYTMHHY	300
Qy	301	NGRTATREDPLNDVDLIFISSVQKVFQVVESTRPGKKWLGSTSAVGGAPLSDTFA	360
Db	301	NGRTATREDPLNDVDLIFISSVQKVFQVVESTRPGKKWLGSTSAVGGAPLSDTFA	360
Qy	361	AGFMWLDKGLSARMGIEVVMROVFPAGNYHLVDENFDPPLPYWLSLFFKLVGTIKVLM	420
Db	361	AGFMWLDKGLSARMGIEVVMROVFPAGNYHLVDENFDPPLPYWLSLFFKLVGTIKVLM	420
Qy	421	ASVQGSRRRLRYVHLCTNTDNPRIYKSGDLTYAIVLHNTYKLRPLPYPSNKQVDKYL	480
Db	421	ASVQGSRRRLRYVHLCTNTDNPRIYKSGDLTYAIVLHNTYKLRPLPYPSNKQVDKYL	480
Qy	481	RPLGPHGLSKSVQNLGLTKWVDDQTLPLMEKPLRPGSSLGIPAFYSFVIRNAKVA	540
Db	481	RPLGPHGLSKSVQNLGLTKWVDDQTLPLMEKPLRPGSSLGIPAFYSFVIRNAKVA	540
Qy	541	ACI 543	
Db	541	ACI 543	

RESULT 6  
ABB07813 standard; protein; 543 AA.

XX ID ABB07813 standard; protein; 543 AA.  
XX AC ABB07813;  
XX DT 03-JUL-2002 (first entry)  
XX DE Human heparanase sequence.  
XX KW Heparanase; catalytic; cytosolic; antiviral; antibacterial; enzyme;  
XX KM anti-protozoan; neuroprotective; heparin; human.  
XX OS Homo sapiens.  
XX PH Key Location/Qualifiers  
XX FT Peptide 1..35  
XX FT Protein 36..543  
XX FT note= "signal peptide"  
XX FT note= "mature protein"

XX US2002034810-A1.  
XX 21-MAR-2002.  
XX 16-AUG-2001; 2001US-00930218.  
XX 20-SEP-2000; 2000US-00666390.  
XX (INSI-) INSIGHT STRATEGY & MARKETING LTD.  
XX Goldshmidt O, Pecker I, Violdavsky I, Michael I, Zcharia E,  
XX WPI; 2002-338926/37.

PT Nucleic acid encoding avian and reptile heparanase polypeptide is useful  
PT to treat various heparin-related disorders and the signal peptide is  
PT useful in production of membrane-targeted or secreted recombinant  
PT proteins.

PS Disclosure; Fig 1a; 39pp; English.

CC The invention relates to an isolated avian and reptile nucleic acid,  
CC encoding a polypeptide with heparanase catalytic activity. The signal  
CC peptide of the nucleic acid can be used to express membrane-associated or  
CC secreted proteins in heterologous expression systems. The encoded  
CC polypeptides can be used to prevent tumour angiogenesis, metastasis and  
CC invasion, and to intervene with pathologies associated with impaired  
CC heparin-binding growth factors, cellular responses to heparin-binding  
CC growth factors and cytokines, cell interaction with plasma lipoproteins,  
CC cellular susceptibility to viral, protozoa and bacterial infections or  
CC disintegration of neurodegenerative plaques. The present sequence  
CC represents a human heparanase protein sequence used in similarity studies

XX Sequence 543 AA;

Query Match 100.0%; Score 2842; DB 5; Length 543;  
Best Local Similarity 100.0%; Pred. No. 3.8e-273;  
Matches 543; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy	1	MLRSKRALPPMLMLLLGPIGLSPGALPRPAQDVVDLDFPTOEPLHLVSPFLSVT	60
Db	1	MLRSKRALPPMLMLLLGPIGLSPGALPRPAQDVVDLDFPTOEPLHLVSPFLSVT	60
Qy	61	IDANLATDPRFLILGSPKRLTLARGSPAYLRFSGTKTDPLIFDPKKESTFEERSYWG	120
Db	61	IDANLATDPRFLILGSPKRLTLARGSPAYLRFSGTKTDPLIFDPKKESTFEERSYWG	120
Qy	121	QVNNODICKYGSIPPDVEEKLRLMPYQEOULLREHYOKKFKNSTYRSRSDVLYTPANC	180
Db	121	QVNNODICKYGSIPPDVEEKLRLMPYQEOULLREHYOKKFKNSTYRSRSDVLYTPANC	180
Qy	181	GLDLIFGLNALRLTADLQWNSNAQLLDYCSSKGYNISWELGNEBNSFLKADIFINGS	240
Db	181	GLDLIFGLNALRLTADLQWNSNAQLLDYCSSKGYNISWELGNEBNSFLKADIFINGS	240
Qy	241	QLGEDYIQLHLKRLKSTFPKNAKLYGPDVQOPRRKTKAMLSFLKAGGEVIDSYTMHHY	300
Db	241	QLGEDYIQLHLKRLKSTFPKNAKLYGPDVQOPRRKTKAMLSFLKAGGEVIDSYTMHHY	300
Qy	301	NGRTATREDPLNDVDLIFISSVQKVFQVVESTRPGKKWLGSTSAVGGAPLSDTFA	360
Db	301	NGRTATREDPLNDVDLIFISSVQKVFQVVESTRPGKKWLGSTSAVGGAPLSDTFA	360
Qy	361	AGFMWLDKGLSARMGIEVVMROVFPAGNYHLVDENFDPPLPYWLSLFFKLVGTIKVLM	420
Db	361	AGFMWLDKGLSARMGIEVVMROVFPAGNYHLVDENFDPPLPYWLSLFFKLVGTIKVLM	420
Qy	421	ASVQGSRRRLRYVHLCTNTDNPRIYKSGDLTYAIVLHNTYKLRPLPYPSNKQVDKYL	480
Db	421	ASVQGSRRRLRYVHLCTNTDNPRIYKSGDLTYAIVLHNTYKLRPLPYPSNKQVDKYL	480
Qy	481	RPLGPHGLSKSVQNLGLTKWVDDQTLPLMEKPLRPGSSLGIPAFYSFVIRNAKVA	540

DB 481 RPLGPHGLSKSVQVNLGLTLKMWDDQTLPLMEKPLRPGSSSLGLPAFSYSFVIRNAKVA 540  
QY 541 ACI 543  
DB 541 ACI 543

RESULT 7  
AAV02346  
ID AAV02346 standard; protein; 592 AA.  
AC AAV02346;  
DT 09-JUL-1999 (first entry)  
XX  
DE A human heparanase protein.  
XX  
KW Heparanase; hpa; modulator; heparin-binding growth factor;  
KW cellular response; cytokine; cell interaction; plasma lipoprotein;  
KW cellular susceptibility; infection; disintegration;  
KW neurodegenerative plaque; wound healing; angiogenesis; restenosis;  
KW atherosclerosis; inflammation; neurodegenerative disease; neuritis;  
KW plasma heparin; micrometastasis; autoimmune lesion; renal failure.  
XX  
OS Homo sapiens.  
PN MO9911798-A1.  
PD 11-MAR-1999.  
PF 31-AUG-1998; 98MO-US017954.  
PR 02-SEP-1997; 97US-00922170.  
PR 02-JUL-1998; 98US-00109386.  
XX  
PA (INSI-) INSIGHT STRATEGY & MARKETING LTD.  
PA (HADA-) HADASIT MEDICAL RES SERVICES & DEV.  
PA (FRIE/) FRIEDMAN M M.  
XX  
PI Becker I, Vlodavsky I, Feinstein E;  
XX  
DR WPI; 1999-302255/25.  
DR N-PSDB; AAX35650.  
XX  
XX New human polynucleotide useful for treating angiogenesis, restenosis,  
PT and inflammation.  
XX  
PS Claim 6; Page 65-66; 63pp; English.  
XX  
CC The specification describes a polypeptide having heparanase (hpa)  
CC activity. The recombinant protein is used as a modulator of heparin-  
CC binding growth factors, cellular responses to heparin-binding growth  
CC factors and cytokines, cell interaction with plasma lipoproteins,  
CC cellular susceptibility to viral, protozoal and bacterial infections or  
CC disintegration of neurodegenerative plaques. Heparanase may be useful for  
CC conditions such as wound healing, angiogenesis, restenosis,  
CC atherosclerosis, inflammation, neurodegenerative diseases, and viral  
CC infections. Mammalian heparanase can be used to neutralize plasma  
CC heparin, and anti-heparanase antibodies may be applied for  
CC immunodetection and diagnosis of micrometastases, autoimmune lesions, and  
CC renal failure in biopsy specimens, plasma samples, and body fluids. The  
CC present sequence represents human heparanase  
XX  
SQ Sequence 592 AA:

Query Match 100.0%; Score 2842; DB 2; Length 592;  
Best Local Similarity 100.0%; Pred. No. 4.3e-273;  
Matches 543; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MLTRSKPALPPPLMLLLGLGFLSPGALPRPAQADVNDLFFQTGEPHLTVSPSLSTV 60  
DB 50 MLTRSKPALPPPLMLLLGLGFLSPGALPRPAQADVNDLFFQTGEPHLTVSPSLSTV 109

QY 61 IDANLATDPRFILLGSPYLARTLARGLSPAYLRFQGTXTDPLIPPKKESTFEERSYMO 120  
DB 110 IDANLATDPRFILLGSPYLARTLARGLSPAYLRFQGTXTDPLIPPKKESTFEERSYMO 169  
QY 121 QVNODICKYGSIPDVEEKRLLEWYPYOEQLLREHYOKKFNSTYSRSSVDVLYTPANCS 180  
DB 170 QVNODICKYGSIPDVEEKRLLEWYPYOEQLLREHYOKKFNSTYSRSSVDVLYTPANCS 229  
QY 181 GIDLIFGNALRTADLQWSSNAQLLDYCSKGYNISWELGNEPNSFLKRAPIFINS 240  
DB 230 GIDLIFGNALRTADLQWSSNAQLLDYCSKGYNISWELGNEPNSFLKRAPIFINS 289  
QY 241 QLGEDYIQLHLKRLKSTFNAKLPGPDVQOPPRKTAAMLKSLKAGGEVIDSVTHHYL 300  
DB 290 QLGEDYIQLHLKRLKSTFNAKLPGPDVQOPPRKTAAMLKSLKAGGEVIDSVTHHYL 349  
QY 301 NGRTATREDPLNDVDLIFISSVQVFPVVESTRPQKXWLCGETSANGGAPLLSDTPA 360  
DB 350 NGRTATREDPLNDVDLIFISSVQVFPVVESTRPQKXWLCGETSANGGAPLLSDTPA 409  
QY 361 AGPMMLDKLGLSABMGIEVVMRQVFFGAGNYHLVDENPDPLPDWMLSLFFKLVGTKVLM 420  
DB 410 AGPMMLDKLGLSABMGIEVVMRQVFFGAGNYHLVDENPDPLPDWMLSLFFKLVGTKVLM 469  
QY 421 ASVQSKRKRLVYLHCTNTDNPYKSGDLTYALNLHNTKYRLPYEPFNKQVDKYL 480  
DB 470 ASVQSKRKRLVYLHCTNTDNPYKSGDLTYALNLHNTKYRLPYEPFNKQVDKYL 529  
QY 481 RPLGPHGLSKSVQVNLGLTLKMWDDQTLPLMEKPLRPGSSSLGLPAFSYSFVIRNAKVA 540  
DB 530 RPLGPHGLSKSVQVNLGLTLKMWDDQTLPLMEKPLRPGSSSLGLPAFSYSFVIRNAKVA 589  
QY 541 ACI 543  
DB 590 ACI 592

RESULT 8  
AAB08850  
ID AAB08850 standard; protein; 592 AA.  
AC AAB08850;  
DT 15-JAN-2001 (first entry)  
XX  
DE Amino acid sequence of a human heparanase polypeptide.  
XX  
XX Human; heparanase; gene therapy; tumour; inflammation; autoimmunity;  
KW heparin-binding growth factor; cytokine; neurodegenerative plaque;  
KW wound healing; infection; burn; angiogenesis; restenosis;  
KW atherosclerosis; inflammation; neurodegenerative disease;  
KW Gerstmann-Strausser Syndrome; Creutzfeldt-Jakob disease.  
XX  
OS Homo sapiens.  
XX  
PN MO200052178-A1.  
PD 08-SEP-2000.  
PF 14-FEB-2000; 2000MO-US003542.  
PR 01-MAR-1999; 99US-00258892.  
XX  
PA (INSI-) INSIGHT STRATEGY & MARKETING LTD.  
PA (HADA-) HADASIT MEDICAL RES SERVICES & DEV.  
PA (FRIE/) FRIEDMAN M M.  
XX  
PI Becker I, Vlodavsky I, Feinstein E;  
XX  
DR WPI; 2000-579289/54.  
DR N-PSDB; AAA75053.  
XX

PT New polynucleotides encoding a polypeptide having heparanase activity, useful in wound healing and in gene therapy, particularly in treating tumor, inflammation, autoimmunity, neurodegenerative diseases.

PS Claim 22; Page 122-123; 152pp; English.

XX The present sequence represents a human protein with heparanase catalytic activity. The heparanase (hpa) polynucleotide is useful in gene therapy, particularly in treating tumor, inflammation or autoimmunity. CC Particularly, the polynucleotide is useful in modulating the CC bioavailability of heparin-binding growth factors, cellular responses to CC heparin-binding growth factors (e.g., bFGF) and cytokines (e.g., interleukin (IL)-8), cell interaction with plasma lipoproteins, cellular CC susceptibility to certain viral and some bacterial and protozoa CC infections, or disintegration of neurodegenerative plaques. The CC polynucleotide is also useful in wound healing (e.g., thermal, chemical or radiation burns), and in the treatment of angiogenesis, restenosis, CC atherosclerosis, inflammation, neurodegenerative diseases (Gerstmann-Strausler Syndrome or Creutzfeldt-Jakob disease), and some viral, CC bacterial or protozoa infections

XX Sequence 592 AA;

Query Match 100.0%; Score 2842; DB 3; Length 592;  
Best Local Similarity 100.0%; Pred. No. 4.3e-273;  
Matches 543; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MLRSKRALPPMLLLGLGPGSPALPPAQAQVDVLDLFFTOEPHLVSPFLSVT 60  
DB 50 MLRSKRALPPMLLLGLGPGSPALPPAQAQVDVLDLFFTOEPHLVSPFLSVT 109  
QY 61 IDANLATDPRFLLGLSPKRLTARGLSPAYLRFGCTKTDPLFDPKKSTFEERSYWG 120  
DB 110 IDANLATDPRFLLGLSPKRLTARGLSPAYLRFGCTKTDPLFDPKKSTFEERSYWG 169  
QY 121 QVNODICKYGSIPPDVEEKLRLMPYQEQLLREHYOKKPKNSTYSSVDVLYTFANCS 180  
DB 170 QVNODICKYGSIPPDVEEKLRLMPYQEQLLREHYOKKPKNSTYSSVDVLYTFANCS 229  
QY 181 GDLIFGLNALRLTADLQWNSNAQLLDYCSKGNISWELGNEPNSFLKADIFINCS 240  
DB 230 GDLIFGLNALRLTADLQWNSNAQLLDYCSKGNISWELGNEPNSFLKADIFINCS 289  
QY 241 QLGEDYIQLHLKLRKSTFKNAKLYGPDVGQPRKRTAKMLSKFAGGEVIDSVTWHYYL 300  
DB 290 QLGEDYIQLHLKLRKSTFKNAKLYGPDVGQPRKRTAKMLSKFAGGEVIDSVTWHYYL 349  
QY 301 NGRTATREDEPLNDVDLFISSVQKVPQVVESTPRGKWLGETSSAYGGAPLSDTFA 360  
DB 350 NGRTATREDEPLNDVDLFISSVQKVPQVVESTPRGKWLGETSSAYGGAPLSDTFA 409  
QY 361 AGFWMLDKGLSARMGIEVVMROVFFGAGNYHLVDENFDPLPDYMLSLFKKLVGTRVLM 420  
DB 410 AGFWMLDKGLSARMGIEVVMROVFFGAGNYHLVDENFDPLPDYMLSLFKKLVGTRVLM 469  
QY 421 ASVQSGRRRLRYVLTCTNDNPRYKGGDLTLVAINLHNTKYLRLPYPSNNQVQKYL 480  
DB 470 ASVQSGRRRLRYVLTCTNDNPRYKGGDLTLVAINLHNTKYLRLPYPSNNQVQKYL 529  
QY 481 RPLGPHGLSKSVQNLGLTKMVDQTLPLMEKPLPGSSGLPAPSYFFVIRNAKVA 540  
DB 530 RPLGPHGLSKSVQNLGLTKMVDQTLPLMEKPLPGSSGLPAPSYFFVIRNAKVA 589  
QY 541 ACT 543  
DB 590 ACT 592

RESULT 9

AA17082 standard; protein; 543 AA.

XX AA17082;  
AC AA17082;

XX 21-JUL-1999 (first entry)  
DT Human heparanase enzyme.  
XX Heparanase; endoglucuronidase; heparan sulfate proteoglycan; enzyme;  
KW metacastis; angiogenesis; wound healing; angioplasty-induced restenosis;  
KW arteriosclerosis; atherosclerosis; inflammation; tissue development;  
KW human; HSPG.  
OS Homo sapiens.  
PN WO9921975-A1.  
XX 06-MAY-1999.  
PD 28-OCT-1998; 98WO-AU000898.  
PF 28-OCT-1997; 97AU-0000062.  
PR 09-DEC-1997; 97AU-00000812.  
XX (AUSU) UNIV AUSTRALIAN NAT.  
PA Freeman CG, Hulst MD, Parish CR, Hamdorf BJ;  
PI WPI: 1999-312956/26.  
XX N-PSDB; AAX37259.  
DR polynucleotides encoding mammalian endoglucuronidases, especially  
PT heparanases, useful to promote wound healing.  
XX Claim 6; Page 69-73; 112pp; English.

XX The invention relates to nucleic acid sequences that encode heparanase CC enzymes having endoglucuronidase activity. Recombinant heparanases are CC capable of removing the HS side chain from heparan sulfate proteoglycan CC (HSPG). Sulfated oligosaccharides, sulphates or HSPG can be used to CC inhibit heparanase, this is useful for treatment of a physiological or CC medical condition associated with elevated heparanase activity, such as CC metastasis, angiogenesis, wound healing, angioplasty-induced restenosis, CC arteriosclerosis, atherosclerosis and inflammation. The human, murine and CC rat heparanases can be used to enhance wound healing, especially CC associated with tissue development and repair. The conditions mentioned CC above can be diagnosed using specific antibodies, and also using primers CC and probes specific for the heparanase polynucleotides. Other uses of the CC heparanases include sequencing sulfated molecules such as HSPG. The CC present sequence represents a human heparanase

SQ Sequence 543 AA;

Query Match 99.9%; Score 2838; DB 2; Length 543;  
Best Local Similarity 99.8%; Pred. No. 9.4e-273;  
Matches 542; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 MLRSKRALPPMLLLGLGPGSPALPPAQAQVDVLDLFFTOEPHLVSPFLSVT 60  
DB 1 MLRSKRALPPMLLLGLGPGSPALPPAQAQVDVLDLFFTOEPHLVSPFLSVT 60  
QY 61 IDANLATDPRFLLGLSPKRLTARGLSPAYLRFGCTKTDPLFDPKKSTFEERSYWG 120  
DB 61 IDANLATDPRFLLGLSPKRLTARGLSPAYLRFGCTKTDPLFDPKKSTFEERSYWG 120  
QY 121 QVNODICKYGSIPPDVEEKLRLMPYQEQLLREHYOKKPKNSTYSSVDVLYTFANCS 180  
DB 121 QVNODICKYGSIPPDVEEKLRLMPYQEQLLREHYOKKPKNSTYSSVDVLYTFANCS 180  
QY 181 GDLIFGLNALRLTADLQWNSNAQLLDYCSKGNISWELGNEPNSFLKADIFINCS 240  
DB 181 GDLIFGLNALRLTADLQWNSNAQLLDYCSKGNISWELGNEPNSFLKADIFINCS 240  
QY 241 QLGEDYIQLHLKLRKSTFKNAKLYGPDVGQPRKRTAKMLSKFAGGEVIDSVTWHYYL 300  
DB 241 QLGEDYIQLHLKLRKSTFKNAKLYGPDVGQPRKRTAKMLSKFAGGEVIDSVTWHYYL 300

QY 301 NGRTATREDFLNPDVLDIFISSVQKVFQVESTTRPGKKWLGETSSAYGGAPILSDTFA 360  
 |||||  
 Db 301 NGRTATREDFLNPDVLDIFISSVQKVFQVESTTRPGKKWLGETSSAYGGAPILSDTFA 360  
 |||||  
 QY 361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHVDENFDPLPDYWSLFRKLVGTXYLM 420  
 |||||  
 Db 361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHVDENFDPLPDYWSLFRKLVGTXYLM 420  
 |||||  
 QY 421 ASVQSGRRKRLRVYLHCTNTDNPYKEGDITLYAINLHNTKYRLPYPSNKQVDXYLL 480  
 |||||  
 Db 421 ASVQSGRRKRLRVYLHCTNTDNPYKEGDITLYAINLHNTKYRLPYPSNKQVDXYLL 480  
 |||||  
 QY 481 RPLGPHGLSKSVQNLGLTLKMWDDQTLPLMEKPLRPSSSLGLPAFSYFFVIRNAKVA 540  
 |||||  
 Db 481 RPLGPHGLSKSVQNLGLTLKMWDDQTLPLMEKPLRPSSSLGLPAFSYFFVIRNAKVA 540  
 |||||  
 QY 541 ACT 543  
 |||||  
 Db 541 ACT 543  
 |||||  
 RESULT 10  
 ID AAB86206 standard; protein; 543 AA.  
 XX AAB86206;  
 AC AAB86206;  
 XX AAB86206;  
 DT 24-AUG-2001 (first entry)  
 XX 24-AUG-2001 (first entry)  
 DE Human heparanase inhibitor protein.  
 XX Human heparanase inhibitor protein.  
 DE Heparanase; inhibitor; cardiac insufficiency; cardiast; nephrotic;  
 KM hepatocytic; veterinary medicine; congestive heart failure; dyspnoea;  
 KM primary cardiomyopathy; peripheral edema; pulmonary congestion;  
 KM hepatic congestion; hydrothorax; ascites; nocturia; human.  
 XX Homo sapiens.  
 OS Homo sapiens.  
 XX Homo sapiens.  
 PN DE19955803-A1.  
 XX DE19955803-A1.  
 PD 23-MAY-2001.  
 XX 23-MAY-2001.  
 PF 19-NOV-1999; 99DE-01055803.  
 XX 19-NOV-1999; 99DE-01055803.  
 PR 19-NOV-1999; 99DE-01055803.  
 XX 19-NOV-1999; 99DE-01055803.  
 PA (KNOL ) KNOLL AG.  
 XX (KNOL ) KNOLL AG.  
 PI Herr D, Hahn A, Laux V;  
 XX Herr D, Hahn A, Laux V;  
 DR WPI; 2001-368371/39.  
 XX WPI; 2001-368371/39.  
 DR N-PSDB; AAH20940.  
 XX N-PSDB; AAH20940.  
 PT Treatment or prevention of cardiac insufficiency and related conditions,  
 XX e.g. pulmonary congestion and dyspnoea, comprises administration of  
 PT heparanase inhibitor.  
 XX heparanase inhibitor.  
 PS Disclosure; Page 11-13; 16pp; German.  
 XX Disclosure; Page 11-13; 16pp; German.  
 CC This invention describes a novel heparanase inhibitor which can be used  
 CC for the treatment or prevention of cardiac insufficiency and associated  
 CC indications, symptoms and/or malfunctions. The heparanase inhibitor of  
 CC the invention has cardiant, nephrotropic and hepatocytic activity. The  
 CC products of the invention can be used in human and veterinary medicine,  
 CC for the treatment or prevention of congestive heart failure e.g. primary  
 CC cardiomyopathy. Associated conditions treated or prevented with the  
 CC inhibitor are especially peripheral edemas, pulmonary and hepatic  
 CC congestion, dyspnoea, hydrothorax and ascites. Renal problems, e.g.  
 CC nocturia can also be treated. This sequence represents the human  
 CC heparanase protein described in the method of the invention  
 XX Sequence 543 AA;  
 XX

Query Match 99.9%; Score 2838; DB 4; Length 543;  
 Best local Similarity 99.8%; Pred. No. 9, 4e-273;  
 Matches 542; Conservative 1; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 MLIRSPALPPMLMLLGLPGLSPGALPPAQAQDVVDLDFPQEPHLVSPSLVY 60  
 |||||  
 Db 1 MLIRSPALPPMLMLLGLPGLSPGALPPAQAQDVVDLDFPQEPHLVSPSLVY 60  
 |||||  
 QY 61 IDNLATDRPFLILGSPFLRLARGLSPAYLRFGGTXTDFLIPPKKSTFEERYSW 120  
 |||||  
 Db 61 IDNLATDRPFLILGSPFLRLARGLSPAYLRFGGTXTDFLIPPKKSTFEERYSW 120  
 |||||  
 QY 121 QVNDICXGSI PPVDEEKLRLPVEQDQLREHXYOKKFKSTSRSSVDVLYTPANCS 180  
 |||||  
 Db 121 QVNDICXGSI PPVDEEKLRLPVEQDQLREHXYOKKFKSTSRSSVDVLYTPANCS 180  
 |||||  
 QY 181 GUDLIFGLNALRTADLQWSSNAQLLDYCSSKGYNISWELGNEBNSFLKXADIFINCS 240  
 |||||  
 Db 181 GUDLIFGLNALRTADLQWSSNAQLLDYCSSKGYNISWELGNEBNSFLKXADIFINCS 240  
 |||||  
 QY 241 QLGEDYIQLHKLKSTFQNAKLXGPVQGPFRKTAAXLKSFLKAGGEYIDSVTHHYLL 300  
 |||||  
 Db 241 QLGEDYIQLHKLKSTFQNAKLXGPVQGPFRKTAAXLKSFLKAGGEYIDSVTHHYLL 300  
 |||||  
 QY 301 NGRTATREDFLNPDVLDIFISSVQKVFQVESTTRPGKKWLGETSSAYGGAPILSDTFA 360  
 |||||  
 Db 301 NGRTATREDFLNPDVLDIFISSVQKVFQVESTTRPGKKWLGETSSAYGGAPILSDTFA 360  
 |||||  
 QY 361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHVDENFDPLPDYWSLFRKLVGTXYLM 420  
 |||||  
 Db 361 AGFMWLDKLGLSARMGIEVVMRQVFFGAGNYHVDENFDPLPDYWSLFRKLVGTXYLM 420  
 |||||  
 QY 421 ASVQSGRRKRLRVYLHCTNTDNPYKEGDITLYAINLHNTKYRLPYPSNKQVDXYLL 480  
 |||||  
 Db 421 ASVQSGRRKRLRVYLHCTNTDNPYKEGDITLYAINLHNTKYRLPYPSNKQVDXYLL 480  
 |||||  
 QY 481 RPLGPHGLSKSVQNLGLTLKMWDDQTLPLMEKPLRPSSSLGLPAFSYFFVIRNAKVA 540  
 |||||  
 Db 481 RPLGPHGLSKSVQNLGLTLKMWDDQTLPLMEKPLRPSSSLGLPAFSYFFVIRNAKVA 540  
 |||||  
 QY 541 ACT 543  
 |||||  
 Db 541 ACT 543  
 |||||  
 RESULT 11  
 ID ADD18950 standard; protein; 543 AA.  
 XX ADD18950;  
 AC ADD18950;  
 XX ADD18950;  
 DT 15-JAN-2004 (first entry)  
 XX 15-JAN-2004 (first entry)  
 DE Human disease related protein Segid439.  
 XX Human disease related protein Segid439.  
 DE human; disease state; cytosstatic; antiinflammatory; ophthalmological;  
 KM antiarteriosclerotic; vulnerary; gene therapy;  
 KM hypoxia-regulated condition; tumorigenesis; angiogenesis; apoptosis;  
 KM inflammation; erythropoiesis; glycolysis; gluconeogenesis;  
 KM glucose transportation; catecholamine synthesis; iron transport;  
 KM nitric oxide synthesis; cancer; ischemic condition; reperfusion injury;  
 KM retinopathy; neonatal stress; pre-eclampsia; atherosclerosis;  
 KM inflammatory condition; wound healing.  
 XX Homo sapiens.  
 OS Homo sapiens.  
 XX Homo sapiens.  
 PN MO2003018621-A2.  
 XX MO2003018621-A2.  
 PD 06-MAR-2003.  
 XX 06-MAR-2003.  
 PF 23-AUG-2002; 2002WO-GB003892.  
 XX 23-AUG-2002; 2002WO-GB003892.  
 XX

PR 23-AUG-2001; 2001GB-00020558.  
 PR 05-OCT-2001; 2001GB-00024037.  
 XX  
 PA (OXFO-) OXFORD BIOMEDICA UK LTD.  
 XX  
 XX Kingeman SM, White J, Ward NR, Harris RA, Naylor S, Mundy CR;  
 PI WPI; 2003-290046/28.  
 DR N-PSDB; ADD18951.  
 XX  
 PT New substantially purified polypeptide, useful for diagnosing or treating  
 PT a hypoxia-regulated condition, such as cancer, ischemia, reperfusion  
 PT injury, retinopathy, pre-eclampsia, atherosclerosis, inflammation, or  
 PT wound healing.  
 XX  
 PS Claim 25; SEQ ID NO 439; 424pp; English.  
 XX  
 CC This invention relates to novel human genes and gene product which are  
 CC implicated in certain disease states. Compounds which modulate the  
 CC proteins of the invention may have cytostatic, antiinflammatory,  
 CC ophthalmological, antiarteriosclerotic or vulnerary activities. The  
 CC sequences of the invention may be useful for gene therapy. The invention  
 CC may be useful for diagnosing or treating a hypoxia-regulated condition,  
 CC such as tumorigenesis, angiogenesis, apoptosis, inflammation,  
 CC erythropoiesis, or the biological response to hypoxia condition,  
 CC including processes such as glycolysis, gluconeogenesis, glucose  
 CC transportation, catecholamine synthesis, iron transport or nitric oxide  
 CC synthesis. The disease includes cancer, ischemic conditions, reperfusion  
 CC injury, retinopathy, neonatal stress, pre-eclampsia, atherosclerosis,  
 CC inflammatory conditions or wound healing. The present sequence is that of  
 CC a disease related protein of the invention.  
 XX  
 XX  
 SO Sequence 543 AA;

Query Match 99.9%; Score 2838; DB 7; Length 543;  
 Best Local Similarity 99.8%; Pred. No. 9,4e-273;  
 Matches 542; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 MLRSKRALPPPLMLLLGLPLSPGALPRPAQADVVLDLFTQEPHLVSPSFLSVT 60  
 DB 1 MLRSKRALPPPLMLLLGLPLSPGALPRPAQADVVLDLFTQEPHLVSPSFLSVT 60  
 QY 61 IDANLATDPRFLLILGSPKRLTARGLSPAYLFRFGGKTDPFLFDPKKESTFEERSYWG 120  
 DB 61 IDANLATDPRFLLILGSPKRLTARGLSPAYLFRFGGKTDPFLFDPKKESTFEERSYWG 120  
 QY 61 IDANLATDPRFLLILGSPKRLTARGLSPAYLFRFGGKTDPFLFDPKKESTFEERSYWG 120  
 DB 61 IDANLATDPRFLLILGSPKRLTARGLSPAYLFRFGGKTDPFLFDPKKESTFEERSYWG 120  
 QY 121 QVNODICTGSIPPDVEBKRLRLEMPYQQLREHYQKFKNSTYSSSVVLVYTPANC 180  
 DB 121 QVNODICTGSIPPDVEBKRLRLEMPYQQLREHYQKFKNSTYSSSVVLVYTPANC 180  
 QY 121 QVNODICTGSIPPDVEBKRLRLEMPYQQLREHYQKFKNSTYSSSVVLVYTPANC 180  
 DB 121 QVNODICTGSIPPDVEBKRLRLEMPYQQLREHYQKFKNSTYSSSVVLVYTPANC 180  
 QY 181 GDLITIGLNLALTADLQWSSNAQLLDVCSKGNVISMELNEPNSFLKKADIFNGS 240  
 DB 181 GDLITIGLNLALTADLQWSSNAQLLDVCSKGNVISMELNEPNSFLKKADIFNGS 240  
 QY 241 QLGEDYIQLHLKLRKSTFKNAKLYGPDVQPRKRTAMLSFKAGGEVDSTVMHYL 300  
 DB 241 QLGEDYIQLHLKLRKSTFKNAKLYGPDVQPRKRTAMLSFKAGGEVDSTVMHYL 300  
 QY 241 QLGEDYIQLHLKLRKSTFKNAKLYGPDVQPRKRTAMLSFKAGGEVDSTVMHYL 300  
 DB 241 QLGEDYIQLHLKLRKSTFKNAKLYGPDVQPRKRTAMLSFKAGGEVDSTVMHYL 300  
 QY 301 NGRTATREDPLNDVLDIFISSVQKVPQVVESTRPKKWLGETSSAYGGAPLSDTPA 360  
 DB 301 NGRTATREDPLNDVLDIFISSVQKVPQVVESTRPKKWLGETSSAYGGAPLSDTPA 360  
 QY 301 NGRTATREDPLNDVLDIFISSVQKVPQVVESTRPKKWLGETSSAYGGAPLSDTPA 360  
 DB 301 NGRTATREDPLNDVLDIFISSVQKVPQVVESTRPKKWLGETSSAYGGAPLSDTPA 360  
 QY 361 AGPMWLDKGLSARMGIEVVMRQVFPAGNVLVDENFDPLPYWLSLFLPKLVGTRKVL 420  
 DB 361 AGPMWLDKGLSARMGIEVVMRQVFPAGNVLVDENFDPLPYWLSLFLPKLVGTRKVL 420  
 QY 421 ASVQSKRRRLRYLHCTNTDNPRYKGGDTLVAINLHNTKYLRYPPPSNKOVDKYL 480  
 DB 421 ASVQSKRRRLRYLHCTNTDNPRYKGGDTLVAINLHNTKYLRYPPPSNKOVDKYL 480  
 QY 481 RPLGPHGLLSKSVQVNLGLTKMVDQTLPLPMEKPLRPGSSLGIPAFSSYFPVIRNAKVA 540  
 DB 481 RPLGPHGLLSKSVQVNLGLTKMVDQTLPLPMEKPLRPGSSLGIPAFSSYFPVIRNAKVA 540

QY 541 ACT 543  
 DB 541 ACT 543

RESULT 12  
 ID AAY30124 standard; protein; 588 AA.  
 XX  
 AC AAY30124;  
 XX  
 DT 20-MAR-2003 (revised)  
 DT 14-OCT-1999 (first entry)  
 XX

DE A human protein with heparanase activity.

XX Human; heparanase; heparan sulfate; trauma; autoimmune disease;  
 KM skin disease; cardiovascular disease; nervous system disease;  
 KM Alzheimer's disease; cancer; cancer metastasis; angiogenesis;  
 KM inflammation; arthritis.

OS Homo sapiens.

PN MO9940207-A1.

PD 12-AUG-1999.

PF 05-FEB-1999; 99MO-BE000777.

PR 09-FEB-1998; 98GB-00002725.

PA (NOVS ) NOVARTIS AG.

PA (NOVS ) NOVARTIS-ERFINDUNGEN VERW GES MBH.

PI Nakajima M, Toyoshima M;

DR WPI; 1999-494300/41.

DR N-PSDB; AAX6671.

PT New heparanase polypeptide useful for treating autoimmune diseases, skin  
 PT diseases, cardiovascular diseases and nervous system diseases including  
 PT Alzheimer's disease.

PS Claim 3; Page 29-31; 40pp; English.

XX The present sequence represents a polypeptide with human heparanase  
 CC biological activity. Antagonists and inhibitors of the protein prevent it  
 CC from degrading the extracellular matrix and releasing heparan sulfate  
 CC from the extracellular matrix surface. The heparanase protein or the anti-  
 CC heparanase antibody are used in pharmaceutical compositions for treating  
 CC warm blooded animals suffering from a disease resulting from shortage or  
 CC lack of the heparanase protein, or from excessive activity or over-  
 CC expression of the heparanase protein, respectively. The heparanase  
 CC protein is used in treating diseases such as trauma, autoimmune disease,  
 CC skin diseases, cardiovascular diseases and nervous system diseases  
 CC including Alzheimer's disease resulting from shortage or lack of  
 CC polypeptide. The anti-heparanase antibody is used in treating the  
 CC diseases like cancer, cancer metastasis, angiogenesis and inflammation  
 CC including arthritis resulting from excessive activity or over expression  
 CC of heparanase protein. The anti-heparanase antibody can be used to detect  
 CC the presence or absence of polypeptide and its concentration. (Updated on  
 CC 20-MAR-2003 to correct PA field.)  
 XX

SO Sequence 588 AA;

Query Match 99.9%; Score 2838; DB 2; Length 588;  
 Best Local Similarity 99.8%; Pred. No. 1.1e-272;  
 Matches 542; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 MLRSKRALPPPLMLLLGLPLSPGALPRPAQADVVLDLFTQEPHLVSPSFLSVT 60  
 DB 1 MLRSKRALPPPLMLLLGLPLSPGALPRPAQADVVLDLFTQEPHLVSPSFLSVT 105

QY 61 IDANLATDPRFLLILGSPKLTARGLSPAYLRFGGTKTDPLIFDPKKESTFEERSYWGOS 120  
DB 106 IDANLATDPRFLLILGSPKLTARGLSPAYLRFGGTKTDPLIFDPKKESTFEERSYWGOS 165  
QY 121 QVNODICKGSGIPPDVEEKLRLFWPYOEQLLREHYOKKFKNSTYSRSSVDVLYTFPANC 180  
DB 166 QVNODICKGSGIPPDVEEKLRLFWPYOEQLLREHYOKKFKNSTYSRSSVDVLYTFPANC 225  
QY 181 GUDLIFGLNALRTADLQWSSNAQLLDYCSSKGYNISWEIGNEBNSFLKXADIFINCS 240  
DB 226 GUDLIFGLNALRTADLQWSSNAQLLDYCSSKGYNISWEIGNEBNSFLKXADIFINCS 285  
QY 241 QUGEDYIQLHLKLRKSTFKNKLYGPDVGPARRKTAAMLKSLKAGGEVIDSVTMHHYYL 300  
DB 286 QUGEDYIQLHLKLRKSTFKNKLYGPDVGPARRKTAAMLKSLKAGGEVIDSVTMHHYYL 345  
QY 301 NGRTATREDPLNDVDLFISSVQKVPQVVESTREPKKWLGETSSAYGGAPLSDTFA 360  
DB 346 NGRTATREDPLNDVDLFISSVQKVPQVVESTREPKKWLGETSSAYGGAPLSDTFA 405  
QY 361 AGFMWLDKGLSARMGIEVVMROVFFGAGNYHLVDENPDPLPDYMLSLFLFKLVGKLYL 420  
DB 406 AGFMWLDKGLSARMGIEVVMROVFFGAGNYHLVDENPDPLPDYMLSLFLFKLVGKLYL 465  
QY 421 ASVQSGSKRRKRLRYVLAHCTNTDNPYKEGDLTLVAINLHNTKYLRLPYFSPNKQVDKLYL 480  
DB 466 ASVQSGSKRRKRLRYVLAHCTNTDNPYKEGDLTLVAINLHNTKYLRLPYFSPNKQVDKLYL 525  
QY 481 RPLGPHGLSKSVQVQNGLTLLKAVDDOTLPLMEKPLRPSSSGLPAPFSYSPVIRAKYA 540  
DB 526 RPLGPHGLSKSVQVQNGLTLLKAVDDOTLPLMEKPLRPSSSGLPAPFSYSPVIRAKYA 585  
QY 541 ACT 543  
DB 586 ACT 588

RESULT 13  
AAB88361  
ID AAB88361 standard; protein; 543 AA.  
AC AAB88361;  
XX  
XX  
DT 23-MAY-2001 (first entry)  
XX  
DE Human membrane or secretory protein clone PSEC0090.  
XX  
XX  
KW Human; secretory protein; membrane protein; vaccine; gene therapy;  
KW rheumatoid arthritis; diabetes.  
XX  
OS Homo sapiens.  
XX  
PN EPI067182-A2.  
XX  
PD 10-JAN-2001.  
XX  
PF 07-JUL-2000; 2000EP-00114090.  
XX  
PR 08-JUL-1999; 99JP-00194179.  
PR 11-JAN-2000; 2000JP-00118775.  
PR 02-MAY-2000; 2000JP-00183766.  
XX  
XX  
PA (HELI-) HELIX RES INST.  
XX  
XX Ota T, Isegai T, Nishikawa T, Kawai Y, Sugiyama T, Hayashi K;  
PI WPI; 2001-093989/11.  
XX  
DR N-PSDB; AAF93788.  
XX  
PT Nucleic acids encoding secretory proteins/membrane proteins, useful in  
XX gene therapy or as candidate target molecules in drug development.  
XX

PS Claim 1; SEQ ID NO 90; 609pp + Sequence Listing; English.  
XX  
XX This invention relates to nucleic acid sequences AAF93744 - AAF93916  
CC which encode human secretory or membrane proteins represented by AAB88317  
CC - AAB88419. Included in the invention are primers AAF93917 - AAF94295 and  
CC AAF62232 - AAF62235 which are used to isolate the cDNA sequences of the  
CC invention. The invention also includes methods for the production of  
CC antibodies directed against the proteins, and cDNA sequences, which can  
CC be used in vaccines. The polynucleotide sequences can be used in gene  
CC therapy. The polynucleotide sequences and the proteins they encode may be  
CC used in the prevention, treatment and diagnosis of diseases associated  
CC with inappropriate secretory protein/membrane protein expression. The  
CC nucleic acids and complementary sequences may also be used as DNA probes  
CC in diagnostic assays (e.g. polymerase chain reactions (PCR)) to detect  
CC and quantitate the presence of similar nucleic acid sequences in samples.  
CC They may also be used to study the expression and function of secretory  
CC proteins/membrane polypeptides and their role in metabolism. The  
CC polypeptides may be used as antigens in the production of antibodies  
CC against them and in assays to identify modulators (agonists and  
CC antagonists) of expression and activity. The antibodies and agonists  
CC may also be used as therapeutic agents to down regulate expression and  
CC activity. The antibodies may also be used as diagnostic agents for  
CC detecting the presence of the polypeptides in samples (e.g. by enzyme  
CC linked immunosorbent assay (ELISA). Examples of diseases which may be  
CC treated include rheumatoid arthritis and diabetes  
XX  
XX Sequence 543 AA;  
SQ  
Query Match 99.4%; Score 2826; DB 4; Length 543;  
Best Local Similarity 99.4%; Pred. No. 1.5e-271;  
Matches 540; Conservative 2; Mismatches 1; Indels 0; Gaps 0;  
QY 1 MLRSKPALPPMLLLGLPLSPGALPRAQADVDLDFPQEPHLVSPFLST 60  
DB 1 MLRSKPALPPMLLLGLPLSPGALPRAQADVDLDFPQEPHLVSPFLST 60  
QY 61 IDANLATDPRFLLILGSPKLTARGLSPAYLRFGGTKTDPLIFDPKKESTFEERSYWGOS 120  
DB 61 IDANLATDPRFLLILGSPKLTARGLSPAYLRFGGTKTDPLIFDPKKESTFEERSYWGOS 120  
QY 121 QVNODICKGSGIPPDVEEKLRLFWPYOEQLLREHYOKKFKNSTYSRSSVDVLYTFPANC 180  
DB 121 QVNODICKGSGIPPDVEEKLRLFWPYOEQLLREHYOKKFKNSTYSRSSVDVLYTFPANC 180  
QY 181 GUDLIFGLNALRTADLQWSSNAQLLDYCSSKGYNISWEIGNEBNSFLKXADIFINCS 240  
DB 181 GUDLIFGLNALRTADLQWSSNAQLLDYCSSKGYNISWEIGNEBNSFLKXADIFINCS 240  
QY 241 QUGEDYIQLHLKLRKSTFKNKLYGPDVGPARRKTAAMLKSLKAGGEVIDSVTMHHYYL 300  
DB 241 QUGEDYIQLHLKLRKSTFKNKLYGPDVGPARRKTAAMLKSLKAGGEVIDSVTMHHYYL 300  
QY 301 NGRTATREDPLNDVDLFISSVQKVPQVVESTREPKKWLGETSSAYGGAPLSDTFA 360  
DB 301 NGRTATREDPLNDVDLFISSVQKVPQVVESTREPKKWLGETSSAYGGAPLSDTFA 360  
QY 361 AGFMWLDKGLSARMGIEVVMROVFFGAGNYHLVDENPDPLPDYMLSLFLFKLVGKLYL 420  
DB 361 AGFMWLDKGLSARMGIEVVMROVFFGAGNYHLVDENPDPLPDYMLSLFLFKLVGKLYL 420  
QY 421 ASVQSGSKRRKRLRYVLAHCTNTDNPYKEGDLTLVAINLHNTKYLRLPYFSPNKQVDKLYL 480  
DB 421 ASVQSGSKRRKRLRYVLAHCTNTDNPYKEGDLTLVAINLHNTKYLRLPYFSPNKQVDKLYL 480  
QY 481 RPLGPHGLSKSVQVQNGLTLLKAVDDOTLPLMEKPLRPSSSGLPAPFSYSPVIRAKYA 540  
DB 481 RPLGPHGLSKSVQVQNGLTLLKAVDDOTLPLMEKPLRPSSSGLPAPFSYSPVIRAKYA 540  
QY 541 ACT 543  
DB 541 ACT 543

RESULT 14  
ID ABP56822 standard; protein; 545 AA.  
XX  
AC ABP56822;  
XX  
DT 02-APR-2003 (first entry)  
XX  
DE Human heparanase protein SEQ ID NO:18.  
XX  
KW Human; heparanase; phosphorothioate; antisense oligonucleotide;  
KW cytosolic; gene therapy; tumour; enzyme.  
XX  
OS Homo sapiens.  
XX  
PN WO2003004705-A1.  
XX  
PD 16-JAN-2003.  
XX  
PF 01-JUL-2002; 2002MO-US020636.  
XX  
PR 05-JUL-2001; 2001US-00899440.  
XX  
PA (UYCO ) UNIV COLUMBIA NEW YORK.  
XX  
PI Stein C;  
XX  
DR WPI; 2003-201558/19.  
DR N-PSDB; AB222816.  
XX  
PT New oligonucleotide having a sequence complementary to a sequence of  
PT ribonucleic acid encoding a heparanase, useful for preparing a  
PT composition for treating tumor.  
XX  
PS Disclosure; Page 46-47; 48pp; English.  
XX  
CC The present invention describes an oligonucleotide having a sequence  
CC complementary to a sequence of ribonucleic acid encoding a heparanase.  
CC The oligonucleotide hybridises with the ribonucleic acid under conditions  
CC of high stringency and has a sequence comprising 10-40 bp. The  
CC inter-nucleoside linkages of the oligonucleotide comprise at least one  
CC phosphorothioate linkage. Hybridisation of the oligonucleotide to the  
CC ribonucleic acid inhibits expression of the heparanase, where inhibition  
CC of heparanase means at least a 50% reduction in the quality of  
CC heparanase. Also described: (1) a method of inhibiting expression of a  
CC heparanase in a cell; (2) a composition comprising the above  
CC oligonucleotide in an amount effective to inhibit the expression of  
CC heparanase in a cell and a carrier; and (3) a method of treating a  
CC tumour in a subject comprises administering to the subject an amount of  
CC the above oligonucleotide effective to inhibit expression of a heparanase  
CC in the subject. Heparanase antisense oligonucleotides have cytosolic  
CC activity; can be used in gene therapy, and can be used for preparing a  
CC composition for treating tumours. The present sequence represents human  
CC heparanase, which is given in the exemplification of the present  
CC invention  
XX  
SO Sequence 545 AA.  
Query Match 99.1%; Score 2817; DB 6; Length 545;  
Best Local Similarity 99.4%; Pred. No. 1.2e-270;  
Matches 542; Conservative 1; Mismatches 0; Indels 2; Gaps 2;  
QY 1 MLRSKRALPP-IMLLIGPLGLSPGALPRPAQA-QDVVDLDFQGEPLHVSPEFLS 58  
DB 1 MLRSKRALPP-IMLLIGPLGLSPGALPRPAQA-QDVVDLDFQGEPLHVSPEFLS 60  
QY VTIIDANLATDPREFLLIGSPKRLTLAGLSPAYLRFSGTKTDFLIPDKKESTFEESSYV 118  
DB 61 VTIIDANLATDPREFLLIGSPKRLTLAGLSPAYLRFSGTKTDFLIPDKKESTFEESSYV 120  
QY 119 OSQOVNODICKYGSIPDVVEEKLRLMEYQOLRLREHYQKKFKXSTYSRSSVDVLYTFAN 178  
DB 121 OSQOVNODICKYGSIPDVVEEKLRLMEYQOLRLREHYQKKFKXSTYSRSSVDVLYTFAN 180

QY 179 CSGLDLIFGLNALLRTADLQWNSNNAQLLDYCSSKGYNISWELAGNEPNSFLKKADIFIN 238  
DB 181 CSGLDLIFGLNALLRTADLQWNSNNAQLLDYCSSKGYNISWELAGNEPNSFLKKADIFIN 240  
QY 239 GSQAGEDYIQLHLKLRKSTFKNAKLYGPDVGQPRRTAKMLKSLKAGGEVIDSVTHMY 298  
DB 241 GSQAGEDYIQLHLKLRKSTFKNAKLYGPDVGQPRRTAKMLKSLKAGGEVIDSVTHMY 300  
QY 299 YLNGRTATREDPLNPVLDIFISSVQKVFQVVESTPGKKWMLGETSSAYGGAPLLSDT 358  
DB 301 YLNGRTATREDPLNPVLDIFISSVQKVFQVVESTPGKKWMLGETSSAYGGAPLLSDT 360  
QY 359 FAAGFMWLDKLGASAMGIEVWVRQVFGAGNVLVDENPDPPLPDYWLSSLFFKLVGTGY 418  
DB 361 FAAGFMWLDKLGASAMGIEVWVRQVFGAGNVLVDENPDPPLPDYWLSSLFFKLVGTGY 420  
QY 419 LMASVQGSRRKRLRVYLHCTNTDNPYKSGDLTYAINDHNTKYLRLPYPSNKQVDKY 478  
DB 421 LMASVQGSRRKRLRVYLHCTNTDNPYKSGDLTYAINDHNTKYLRLPYPSNKQVDKY 480  
QY 479 LMRPLGPHGLSKSVQVUNGITLKMVDOTLPLMEKPLRPGSLGLPARSYSPFVIRNAK 538  
DB 481 LMRPLGPHGLSKSVQVUNGITLKMVDOTLPLMEKPLRPGSLGLPARSYSPFVIRNAK 540  
QY 539 VAACT 543  
DB 541 VAACT 545  
RESULT 15  
ID ADE16012 standard; protein; 545 AA.  
XX  
AC ADE16012;  
XX  
DT 29-JAN-2004 (first entry)  
XX  
DE G-coupled protein receptor related polypeptide, SEQ ID NO 42.  
XX  
KW G-coupled protein receptor; antidiabetic; anorectic; antibacterial;  
KW vtrucide; fungicide; cytostatic; neurotropic; neuroprotective;  
KW antiParkinsonian; haemostatic; antilipemic; neurogenesis;  
KW cell differentiation; cell proliferation; hematopoiesis; wound healing;  
KW angiogenesis; gene therapy; chromosome mapping; tissue typing;  
KW preventive medicine; pharmacogenomics; human.  
XX  
OS Homo sapiens.  
XX  
PN WO200283841-A2.  
XX  
PD 24-OCT-2002.  
XX  
PF 03-APR-2002; 2002MO-US010713.  
XX  
PR 03-APR-2001; 2001US-0281136P.  
PR 05-APR-2001; 2001US-0281863P.  
PR 10-APR-2001; 2001US-0281906P.  
PR 13-APR-2001; 2001US-0282934P.  
PR 13-APR-2001; 2001US-0283657P.  
PR 13-APR-2001; 2001US-0283678P.  
PR 13-APR-2001; 2001US-0283687P.  
PR 13-APR-2001; 2001US-0283710P.  
PR 17-APR-2001; 2001US-0284234P.  
PR 19-APR-2001; 2001US-0285325P.  
PR 20-APR-2001; 2001US-0285609P.  
PR 23-APR-2001; 2001US-0285748P.  
PR 23-APR-2001; 2001US-0285790P.  
PR 24-APR-2001; 2001US-0286068P.  
PR 27-APR-2001; 2001US-0287213P.  
PR 03-MAY-2001; 2001US-0288509P.  
PR 30-MAY-2001; 2001US-0294495P.  
PR 31-MAY-2001; 2001US-0294801P.

PR 31-JUL-2001; 2001US-0309216P.  
PR 25-SEP-2001; 2001US-0324775P.  
PR 28-NOV-2001; 2001US-0333900P.  
PR 02-APR-2002; 2002US-00115479.  
XX  
XX (CURA-) CURAGEN CORP.  
XX  
XX Li L, Gerlach V, Liu X, Miller CE, Spytek KA, Zehrusen BD;  
PI Pons CE, Shenoy SG, Zhong H, Smithson G, Caeman SJ, Boldog FL;  
PI Voss EZ, Vernet CM, Macdougall JR, Raetelli L, Anderson DW;  
PI Zhong M, Mezes PD, Fureak K, Paturajan M, Burgess CE, Malyanar UM;  
PI Shimkete RA, Taupier RJ, Edinger SR, Mazur A;  
XX  
XX MPI; 2003-067574/06.  
DR N-PSDB; ADE16011.  
XX  
PT New isolated NOVX polypeptides and polynucleotides, useful for  
PT preventing, diagnosing or treating NOVX-associated disorders e.g.  
PT diabetes, obesity, dyslipidemias, cancer, Parkinson's disease,  
PT Alzheimer's disease, infections.  
XX  
XX Claim 1; SEQ ID NO 42; 320bp; English.  
BS  
XX The invention relates to a novel isolated G-coupled protein receptor  
CC related polypeptides. The novel polypeptide comprise any of the 22 fully  
CC defined sequences of 87-1780 amino acids, given in the specification;  
CC their mature forms; and possible variants. The novel polypeptides have  
CC the following activities: antidiabetic, anorectic, antibacterial,  
CC virucide, fungicide, cytostatic, nootropic, neuroprotective,  
CC antiparkinsonian, haemostatic, and antihypaemic. The G-coupled protein  
CC receptor related polypeptides are useful in a method of treating or  
CC preventing in a human, a pathology associated with the G-coupled protein  
CC receptor related polypeptides. The polypeptides are useful in the  
CC manufacture of a medicament for treating a syndrome associated with a  
CC human disease, preferably a NOVX-associated disorder. The novel  
CC polypeptides are useful for treating, preventing or diagnosing diseases,  
CC such as metabolic disorders, diabetes, obesity, infectious diseases,  
CC anorexia, cancer-associated diseases, neurodegenerative disorders,  
CC Alzheimer's disease, Parkinson's disease, immune disorders, hematopoietic  
CC disorders, and various dyslipidemias, metabolic disturbances associated  
CC with obesity, metabolic X syndrome and wasting disorders associated with  
CC chronic diseases and various cancers. The nucleic acids and polypeptides  
CC may also be used as targets for the identification of small molecules  
CC that modulate or inhibit e.g. neurogenesis, cell differentiation, cell  
CC proliferation, hematopoiesis, wound healing and angiogenesis, in gene  
CC therapy, in generation of antibodies that bind immunospecifically to NOVX  
CC substances for use in therapeutic or diagnostic methods. The nucleic  
CC acids are further used as hybridization probes, in chromosome mapping,  
CC tissue typing, preventive medicine, and pharmacogenomics. This sequence  
CC represents one of the novel G-coupled protein receptor related  
CC polypeptides of the invention.  
XX  
XX Sequence 545 AA.  
SO  
Query Match 99.1%; Score 2817; DB 7; Length 545;  
Best Local Similarity 99.4%; Pred. No. 1.2e-270;  
Matches 542; Conservative 1; Mismatches 0; Indels 2; Gaps 2;  
QY 1 MLRSRPAAPP-IMLLILGPIPLSPGALPRPAQA-QDVVDLDFQEPRLHVSRSFLS 58  
DB 1 MLRSRPAAPP-IMLLILGPIPLSPGALPRPAQAQDVVDLDFQEPRLHVSRSFLS 60  
QY 59 VTIDANLATPDRFLILGSPKRLTARGLSPAYLRFSGTDTDFLFPDKSTFEERSY 118  
DB 61 VTIDANLATPDRFLILGSPKRLTARGLSPAYLRFSGTDTDFLFPDKSTFEERSY 120  
QY 119 QSGVNDICRYGSIIPDVEEKLRLWPYQQLLREHYQKKFNGSTYSRSVDVLTTFAN 178  
DB 121 QSGVNDICRYGSIIPDVEEKLRLWPYQQLLREHYQKKFNGSTYSRSVDVLTTFAN 180  
QY 179 CSQLDLIFGMLNLRPADLQWNSNMQLLDYCSSKGYNSWELGNEPNSFLKADIFIN 238  
DB 181 CSQLDLIFGMLNLRPADLQWNSNMQLLDYCSSKGYNSWELGNEPNSFLKADIFIN 240

QY 239 GSQLGEDIYQLHKLRLKSTFKNAKLYGPVQGPRRRTAAMLSFLKAGGEVIDSVTHNY 298  
DB 241 GSQLGEDPIQLHKLRLKSTFKNAKLYGPVQGPRRRTAAMLSFLKAGGEVIDSVTHNY 300  
QY 299 YLNGRTATREDPLNPDVLDIFISSVQKVPQVVESTRPGKRWLGETSSAYGGAPLLSPT 358  
DB 301 YLNGRTATREDPLNPDVLDIFISSVQKVPQVVESTRPGKRWLGETSSAYGGAPLLSPT 360  
QY 359 PAAGFWMLDKLGISARMGIEVMRQVFGAGNYHVDENFDPPLPYWLSLPRKLVGTGY 418  
DB 361 PAAGFWMLDKLGISARMGIEVMRQVFGAGNYHVDENFDPPLPYWLSLPRKLVGTGY 420  
QY 419 LMAVQGSRRKRLRVYLHCTNTDNPYKSGDLTYAINLHNTKYLRLPYPSNMQVDKY 478  
DB 421 LMAVQGSRRKRLRVYLHCTNTDNPYKSGDLTYAINLHNTKYLRLPYPSNMQVDKY 480  
QY 479 LRLPLGPHGLSKSVQVNLGLTLKMYDDQTLPLMEKPLRPGSLGIPARSYGFVYIRNAK 538  
DB 481 LRLPLGPHGLSKSVQVNLGLTLKMYDDQTLPLMEKPLRPGSLGIPARSYGFVYIRNAK 540  
QY 539 VAACT 543  
DB 541 VAACT 545  
RESULT 16  
ID AAY34173 standard; protein; 530 AA.  
XX AAY34173;  
AC AAY34173;  
XX  
DT 15-NOV-1999 (first entry)  
XX  
DB Human pre-proheparanase protein sequence.  
XX  
XX Human; pre-proheparanase; platelet; wound healing; angiogenesis blocker;  
XX inflammation; psoriasis; diabetic retinopathy; solid tumour; arthritis;  
XX heparin degradation; anticoagulant neutralisation; asthma; CNS disease;  
XX inflammatory disease; vascular restenosis; atherosclerosis; diagnosis;  
XX tumour growth; fibroproliferative disorder; neurodegenerative disease;  
XX therapy.  
XX  
XX Homo sapiens.  
OS  
XX MO9943830-A2.  
XX  
XX 02-SEP-1999.  
PD  
XX 18-FEB-1999; 99WO-US001489.  
PF  
XX  
XX 24-FEB-1998; 98US-0075706P.  
PR 26-MAR-1998; 98US-0079401P.  
XX  
XX (PHAA ) PHARMACIA & UPJOHN CO.  
PA  
PI Heintzkeon RL, Fairbanks MB, Mildner AM,  
PI  
XX  
DR MPI; 1999-540598/45.  
DR N-PSDB; AA211236.  
XX  
PT New isolated platelet heparanase polypeptides, used to develop products  
PT for, e.g. wound healing and blocking angiogenesis.  
XX  
XX Claim 12; Fig 7; 57bp; English.  
PS  
XX This sequence is the human pre-proheparanase of the invention. This  
CC sequence was isolated from human platelets. The heparanase can be used  
CC for identifying agents which alter heparanase activity. The heparanase  
CC can be used for wound healing or for blocking angiogenesis or  
CC inflammation. It can be used for treating e.g. psoriasis, diabetic  
CC retinopathy or solid tumours, or for the degradation of heparin and the  
CC neutralisation of heparin's anticoagulant properties during surgery.

CC Inhibitors of heparanase activity can be used in the treatment of  
 CC arthritis, asthma, and other inflammatory diseases, vascular restenosis,  
 CC atherosclerosis, tumour growth and progression, fibroproliferative  
 CC disorders, and central nervous system (CNS) and neurodegenerative  
 CC diseases. The products can also be used for detection and diagnosis. The  
 CC purified heparanase, both recombinantly produced human heparanase and  
 CC heparanase isolated from human platelet activity, allow for the  
 CC convenient selection of compounds having anti-heparanase activity, i.e.  
 CC inhibitors of heparanase activity, by measuring inhibition of heparanase  
 CC activity. Inhibition of heparanase activity can be measured by blocking  
 CC heparanase-mediated release of radioactive fragments from in vivo  
 CC radiolabelled (HSPG)/heparin

SO Sequence 530 AA;

Query Match 97.3%; Score 2764; DB 2; Length 530;  
 Best Local Similarity 99.4%; Pred. No. 2,1e-265;  
 Matches 527; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

QY 14 MLLLLGPIGLSPGALPRPAQADVVDLDFPTQEPHLVSPSLSTYTDANLATDPRFLI 73  
 DB 1 MLLLLGPIGLSPGALPRPAQADVVDLDFPTQEPHLVSPSLSTYTDANLATDPRFLI 60  
 QY 74 ILGSPKLTARGLSPAYLRFGGTDTDFLFDPKKESTFEERSYWGQVQVODICKYGSIP 133  
 DB 61 ILGSPKLTARGLSPAYLRFGGTDTDFLFDPKKESTFEERSYWGQVQVODICKYGSIP 120  
 QY 134 PDVEEKLRLMPYQEOQLLREHYOKKFNSTYSRSSVDVLYTPANCGLDLIFGLNALLR 193  
 DB 121 PDVEEKLRLMPYQEOQLLREHYOKKFNSTYSRSSVDVLYTPANCGLDLIFGLNALLR 180  
 QY 194 TALQWSSNAQQLLDVCSKGYNISWELGNEPNSFLKADIFINGSLGSDYIQLHKL 253  
 DB 181 TALQWSSNAQQLLDVCSKGYNISWELGNEPNSFLKADIFINGSLGSDYIQLHKL 240  
 QY 254 RKSTFKNAKLYGPDVGQPRKRTAKMLKSPKAGEVIDSVTMHHYYLNGRTATREDPLNP 313  
 DB 241 RKSTFKNAKLYGPDVGQPRKRTAKMLKSPKAGEVIDSVTMHHYYLNGRTATREDPLNP 300  
 QY 314 DVIDLFISSVQKVFQVVESTRPGKRWLGSTSSAYGGAPLLSDTPAAGFMWLDKGLSA 373  
 DB 301 DVIDLFISSVQKVFQVVESTRPGKRWLGSTSSAYGGAPLLSDTPAAGFMWLDKGLSA 360  
 QY 374 RMGIEVVMRQVFFGAGNYHLVDENFDPDPYWSLFLFKLVGTRKVLMAVQSSKRRRLRV 433  
 DB 361 RMGIEVVMRQVFFGAGNYHLVDENFDPDPYWSLFLFKLVGTRKVLMAVQSSKRRRLRV 420  
 QY 434 YLHCTNTDNPBYKEGDLTLVAINLHNTKYLRLPYPSNKQVQVYLLRPLGPHGLSKSV 493  
 DB 421 YLHCTNTDNPBYKEGDLTLVAINLHNTKYLRLPYPSNKQVQVYLLRPLGPHGLSKSV 480  
 QY 494 QLNGLTLKMWDDQTLPLMEKPLRPGSSGLPAPSYSPFYIRNAKVACI 543  
 DB 481 QLNGLTLKMWDDQTLPLMEKPLRPGSSGLPAPSYSPFYIRNAKVACI 530

RESULT 17

AAV17083 standard; protein; 532 AA.

AAV17083;

21-JUL-1999 (first entry)

Seq ID No: 15 of WO9291975.

XX Heparanase; endoglucuronidase; heparan sulfate proteoglycan; enzyme;  
 XX metaastasis; angiogenesis; wound healing; angioplasty-induced restenosis;  
 XX atherosclerosis; atherosclerosis; inflammation; tissue development;  
 XX human; HSPG.  
 XX Homo sapiens.  
 XX

PN WO921975-A1.

XX 06-MAY-1999.

XX 28-OCT-1998; 98WO-AU000898.

XX 28-OCT-1997; 97AU-0000062.

XX 09-DEC-1997; 97AU-00000812.

XX (AUSU ) UNIV AUSTRALIAN NAT.

XX Freeman CG, Hulett MD, Parish CR, Hamdorf BJ;

XX WPI; 1999-312956/26.

XX N-ESDB; AAX37260.

XX Polynucleotides encoding mammalian endoglucuronidases, especially  
 XX heparanases, useful to promote wound healing.

XX Claim 6; Page 76-79; 112pp; English.

CC The invention relates to nucleic acid sequences that encode heparanase  
 CC enzymes having endoglucuronidase activity. Recombinant heparanases are  
 CC capable of removing the HS side chain from heparan sulfate proteoglycan  
 CC (HSPG). Sulfated oligosaccharides, sulphonates or HSPG can be used to  
 CC inhibit heparanase, this is useful for treatment of a physiological or  
 CC medical condition associated with elevated heparanase activity, such as  
 CC metaastasis, angiogenesis, wound healing, angioplasty-induced restenosis,  
 CC atherosclerosis, atherosclerosis and inflammation. The human, murine and  
 CC rat heparanases can be used to enhance wound healing, especially  
 CC associated with tissue development and repair. The conditions mentioned  
 CC above can be diagnosed using specific antibodies, and also using primers  
 CC and probes specific for the heparanase polynucleotides. Other uses of the  
 CC heparanases include sequencing sulfated molecules such as HSPG

SO Sequence 532 AA;

Query Match 96.3%; Score 2737; DB 2; Length 532;  
 Best Local Similarity 99.8%; Pred. No. 1e-262;  
 Matches 522; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 MLRSKRALPPMLMLLGLPLGSPGALPRPAQADVVDLDFPTQEPHLVSPSLSTY 60  
 DB 1 MLRSKRALPPMLMLLGLPLGSPGALPRPAQADVVDLDFPTQEPHLVSPSLSTY 60  
 QY 61 IDANLATDPRFLILGSPKLTARGLSPAYLRFGGTDTDFLFDPKKESTFEERSYWGQ 120  
 DB 61 IDANLATDPRFLILGSPKLTARGLSPAYLRFGGTDTDFLFDPKKESTFEERSYWGQ 120  
 QY 121 QVWQVODICKYGSIPPDVEEKLRLMPYQEOQLLREHYOKKFNSTYSRSSVDVLYTPANC 180  
 DB 121 QVWQVODICKYGSIPPDVEEKLRLMPYQEOQLLREHYOKKFNSTYSRSSVDVLYTPANC 180  
 QY 181 GDDLIFGLNALRLTADLQWSSNAQQLLDVCSKGYNISWELGNEPNSFLKADIFING 240  
 DB 181 GDDLIFGLNALRLTADLQWSSNAQQLLDVCSKGYNISWELGNEPNSFLKADIFING 240  
 QY 241 QLNGLTLKMWDDQTLPLMEKPLRPGSSGLPAPSYSPFYIRNAKVACI 543  
 DB 241 QLNGLTLKMWDDQTLPLMEKPLRPGSSGLPAPSYSPFYIRNAKVACI 530  
 QY 301 NGRTATREDPLNDVDLFISSVQKVFQVVESTRPGKRWLGSTSSAYGGAPLLSDTPA 360  
 DB 301 NGRTATREDPLNDVDLFISSVQKVFQVVESTRPGKRWLGSTSSAYGGAPLLSDTPA 360  
 QY 361 AGFMWLDKGLSARMGIEVVMRQVFFGAGNYHLVDENFDPDPYWSLFLFKLVGTRKVL 420  
 DB 361 AGFMWLDKGLSARMGIEVVMRQVFFGAGNYHLVDENFDPDPYWSLFLFKLVGTRKVL 420  
 QY 421 ASVQSSKRRRLRVYLHCTNTDNPBYKEGDLTLVAINLHNTKYLRLPYPSNKQVQVYLL 480  
 DB 421 ASVQSSKRRRLRVYLHCTNTDNPBYKEGDLTLVAINLHNTKYLRLPYPSNKQVQVYLL 480



XX The present sequence represents murine protein with heparanase catalytic  
CC activity. The heparanase (hpa) polynucleotide is useful in gene therapy,  
CC particularly in treating tumour, inflammation or autoimmunity.  
CC Particularly, the polynucleotide is useful in modulating the  
CC bioavailability of heparin-binding growth factors, cellular responses to  
CC heparin-binding growth factors (e.g. bFGF) and cytokines (e.g.  
CC interleukin (IL)-8), cell interaction with plasma lipoproteins, cellular  
CC susceptibility to certain viral and some bacterial and protozoa  
CC infections, or disintegration of neurodegenerative plaques. The  
CC polynucleotide is also useful in wound healing (e.g. thermal, chemical or  
CC radiation burns), and in the treatment of angiogenesis, restenosis,  
CC atherosclerosis, inflammation, neurodegenerative diseases (Gerstmann-  
CC Strausler Syndrome or Creutzfeldt-Jakob disease), and some viral,  
CC bacterial or protozoa infections  
XX  
SQ Sequence 535 AA;  
Query Match 75.5%; Score 2146; DB 3; Length 535;  
Best Local Similarity 76.5%; Pred. No. 6.5e-204;  
Matches 406; Conservative 51; Mismatches 74; Indels 0; Gaps 0;  
QY 13 LMLLLGRLPLSPGALPRPAQADVDVDFTOEPLHLVSPSFLSVTIDANLATDPRFL 72  
DB 5 LILMLMGRLGALAGAPAGTAPTDVDFEYTKRPLRSVSPSFLSTIDASLATDPRFL 64  
QY 73 ILLGSPKRLTLANGLSPAYIRFGCTDPLIFDPKKESTFEERSYQSQVNODICXGSI 132  
DB 65 TFLGSPRLRLALARGLSPAYIRFGCTDPLIFDPKKESTFEERSYQSQVNODICRSEPV 124  
QY 133 PPVEEKLRLRWYQOEILLREHYOKKKNSTYSRSDVLYFPANCSGDLIFGLNAL 192  
DB 125 SAAVLRKLVQWEPFOELLRLBOYQKFKNSTYSRSDVLYFPANCSGDLIFGLNAL 184  
QY 193 RTADLQWSSNAQLLDLYCSSKGYNISWELGNEPNSFLKXADIFINGSQLEBDYQLHL 252  
DB 185 RTDPLRWNSSNAQLLDLYCSSKGYNISWELGNEPNSFWKKAHLIDQLQGEDFVELHL 244  
QY 253 LRKSTFKNAKLYGPDVQGPFRKTKAKMLKSLKAGGVYDSVTWHYILNRTATREDFLN 312  
DB 245 LQSAFQNAKLXGPDIGQPKGTIVKLRSLKAGGVYDSVTWHYILNRTATREDFLN 304  
QY 313 PDVLDFISSVQKVOFVESSTRPGKVMYLGESTSAYGAGAPLSDPFAAGFMWLDKGLS 372  
DB 305 SDALDPLFISVQKILKTKYKTEITPGKVMYLGESTSAYGAGAPLSDPFAAGFMWLDKGLS 364  
QY 373 ARMGIEVVMKQVFFGAGNYHLVDENFDPLDPYMLSLFKKLVGTVKVLMAVQSGSKRKL 432  
DB 365 AQMGIEVVMKQVFFGAGNYHLVDENFDPLDPYMLSLFKKLVGTVKVLMAVQSGSKRKL 424  
QY 433 VYLHCTNTDNPRIKEGDLTYAINLHNVTKYLRILPYFSNKKQVDKYLRLRPLGPHGLSKS 492  
DB 425 VYLHCTNVVHPRYQEGDLTYVNLHNVTKYLRILPYFSNKKQVDKYLRLRPLGPHGLSKS 484  
QY 493 VOLNGULTKVNDQOTLPLMEKPLRGSSSILGPAFSGSPVIRAKKAACI 543  
DB 485 VOLNGULTKVNDQOTLPLMEKPLRGSSSILGPAFSGSPVIRAKKAACI 535

XX Key Location/Qualifiers  
FH Peptide 1..17 /note="putative signal peptide"  
FT Protein 18..535 /note="mature protein"  
XX US2002034810-A1.  
XX 21-MAR-2002.  
XX 16-AUG-2001; 2001US-00930218.  
XX 20-SEP-2000; 2000US-00666390.  
XX (INSI-) INSIGHT STRATEGY & MARKETING LTD.  
XX Goldsmith O, Pecker I, Vlodavsky I, Michal I, Zcharia E;  
XX WPI; 2002-338926/37.  
XX Nucleic acid encoding avian and reptile heparanase polypeptide is useful  
XX PT to treat various heparin-related disorders and the signal peptide is  
XX PT useful in production of membrane-targeted or secreted recombinant  
XX PT proteins.  
XX Disclosure, Fig 1a; 39pp; English.  
XX The invention relates to an isolated avian and reptile nucleic acid,  
XX CC encoding a polypeptide with heparanase catalytic activity. The signal  
XX CC peptide of the nucleic acid can be used to express membrane-associated or  
XX CC secreted proteins in heterologous expression systems. The encoded  
XX CC polypeptides can be used to prevent tumour angiogenesis, metastasis and  
XX CC invasion, and to intervene with pathologies associated with impaired  
XX CC heparin-binding growth factors, cellular responses to heparin-binding  
XX CC growth factors and cytokines, cell interaction with plasma lipoproteins,  
XX CC cellular susceptibility to viral, protozoa and bacterial infections or  
XX CC disintegration of neurodegenerative plaques. The present sequence  
XX CC represents a mouse heparanase protein sequence used in similarity studies  
XX  
SQ Sequence 535 AA;  
Query Match 75.5%; Score 2146; DB 5; Length 535;  
Best Local Similarity 76.5%; Pred. No. 6.5e-204;  
Matches 406; Conservative 51; Mismatches 74; Indels 0; Gaps 0;  
QY 13 LMLLLGRLPLSPGALPRPAQADVDVDFTOEPLHLVSPSFLSVTIDANLATDPRFL 72  
DB 5 LILMLMGRLGALAGAPAGTAPTDVDFEYTKRPLRSVSPSFLSTIDASLATDPRFL 64  
QY 73 ILLGSPKRLTLANGLSPAYIRFGCTDPLIFDPKKESTFEERSYQSQVNODICXGSI 132  
DB 65 TFLGSPRLRLALARGLSPAYIRFGCTDPLIFDPKKESTFEERSYQSQVNODICRSEPV 124  
QY 133 PPVEEKLRLRWYQOEILLREHYOKKKNSTYSRSDVLYFPANCSGDLIFGLNAL 192  
DB 125 SAAVLRKLVQWEPFOELLRLBOYQKFKNSTYSRSDVLYFPANCSGDLIFGLNAL 184  
QY 193 RTADLQWSSNAQLLDLYCSSKGYNISWELGNEPNSFLKXADIFINGSQLEBDYQLHL 252  
DB 185 RTDPLRWNSSNAQLLDLYCSSKGYNISWELGNEPNSFWKKAHLIDQLQGEDFVELHL 244  
QY 253 LRKSTFKNAKLYGPDVQGPFRKTKAKMLKSLKAGGVYDSVTWHYILNRTATREDFLN 312  
DB 245 LQSAFQNAKLXGPDIGQPKGTIVKLRSLKAGGVYDSVTWHYILNRTATREDFLN 304  
QY 313 PDVLDFISSVQKVOFVESSTRPGKVMYLGESTSAYGAGAPLSDPFAAGFMWLDKGLS 372  
DB 305 SDALDPLFISVQKILKTKYKTEITPGKVMYLGESTSAYGAGAPLSDPFAAGFMWLDKGLS 364  
QY 373 ARMGIEVVMKQVFFGAGNYHLVDENFDPLDPYMLSLFKKLVGTVKVLMAVQSGSKRKL 432  
DB 365 AQMGIEVVMKQVFFGAGNYHLVDENFDPLDPYMLSLFKKLVGTVKVLMAVQSGSKRKL 424



PT proteins.  
 XX  
 SS Claim 19; Fig 1b; 39pp; English.  
 CC The invention relates to an isolated avian and reptile nucleic acid,  
 CC encoding a polypeptide with heparanase catalytic activity. The signal  
 CC peptide of the nucleic acid can be used to express membrane-associated or  
 CC secreted proteins in heterologous expression systems. The encoded  
 CC polypeptide can be used to prevent tumour angiogenesis, metastasis and  
 CC invasion, and to intervene with pathologies associated with impaired  
 CC heparin-binding growth factors, cellular responses to heparin-binding  
 CC growth factors and cytokines, cell interaction with plasma lipoproteins,  
 CC cellular susceptibility to viral, protozoa and bacterial infections or  
 CC disintegration of neurodegenerative plaques. The present sequence  
 CC represents a chicken heparanase protein  
 XX  
 SQ Sequence 523 AA;  
 Query Match 57.9%; Score 1645.5; DB 5; Length 523;  
 Best Local Similarity 60.2%; Pred. No. 3,9e-154;  
 Matches 320; Conservative 87; Mismatches 114; Indels 11; Gaps 3;  
 QY 13 LMLLLGPGPLSPGALPRPAQADVVDLFTQEPHLVSPSPSLVTIDANLATDPRFL 72  
 DB 2 LVLLLVLLAVPP-----RTVAELQLGRLPGAVSPAFSLTLDASLARDPRFV 52  
 QY 73 ILLGPKRLTLAAGLSPAYIRFGCTKTDPLIPPKKSTREBSYMQSVNODICKGSI 132  
 DB 53 ALIRHKKLHTLASGLSPGFLRFGSTDFLIFPNKDSITWEEKVLEFQA-KDVCAWPS 111  
 QY 133 PRDVEKRLLEWFPYOSOLLREHYOKKFKNSTYSRSSVDLYLPANCSGDLIFGNALL 192  
 DB 112 FAVVPRKLLTQWLOEKLALAEWSKKHKNITITRSTLDLHFPASSGRLVFGNAL 171  
 QY 193 RTADLQWSSNAQLLDYSSSKGYNISWELGNEPNSFLKADIFINGSOUGEDYIOLHK 252  
 DB 172 RRAGLQWSSNAQQLLGYCAQRSYNSWELGNEPNSRKKSGICIDGFLQGRFVHLRQ 231  
 QY 253 L-RKSTFKNAKLYGPDVGGPRRTAKMLKSLFAGGEVIDSVTHHHYLANGRTATBD 311  
 DB 232 LSGHPRYRAHELGLVGGPRKKTOLHLSFKMSGKALDSVTMHHYVNGRSATBEDFL 291  
 QY 312 NPVDLIFISSVOKVFQVVESTRPGKKWMLGERTSSAYGGAPLSDTFAAGFMWLDK 371  
 DB 292 SEPVLDSFATLIDVGLIYEATVPGKKWMLGETGSAYGGAPLSDTFAAGFMWLDK 351  
 QY 372 SARMGIEVVMRQVFGAGNYHLVDENFDPLPDYMLSLFKGLVGTKVLMAVQSGRRKL 431  
 DB 352 AARRGIDVVMRQVSGFAGSYHLVDAGFKPLPDYMLSLYKRLVGTREVLDQASVEQADARR 411  
 QY 432 RYVLIHCTNDNPRYKSGDLTLVAINLHNTKYLRLPYPSNKOVDKYLRLPLGPHGLSK 491  
 DB 412 RYVLIHCTNPNRYPKRGDVTLPALNLSNVTQSLQPLKQMLSKSVDDYLLPHGKDSILSR 471  
 QY 492 SVQNLGLTLKMVDOTLPLMEKPLRPGSSGLPAPSYSPFVIRNAKVAACI 543  
 DB 472 EYQNLGRLLQWVDDETLPLALHEMALPAGSTLGPAPSYSPFVIRNAKVAACI 523  
 RESULT 23  
 AA17085  
 ID AA17085 standard; protein; 380 AA.  
 XX  
 AC AA17085;  
 XX  
 DT 21-JUL-1999 (first entry)  
 XX  
 DE Rat heparanase enzyme.  
 XX  
 KW Heparanase; endoglucuronidase; heparan sulfate proteoglycan; enzyme;  
 KW metastasis; angiogenesis; wound healing; angioplasty-induced restenosis;  
 KW arteriosclerosis; atherosclerosis; inflammation; tissue development; rat;  
 KW HSPG.

XX  
 OS Rattus sp.  
 XX  
 PN MO921975-A1.  
 XX  
 PD 06-MAY-1999.  
 XX  
 PF 28-OCT-1998; 98WO-AU000898.  
 XX  
 PR 28-OCT-1997; 97AU-0000062.  
 XX  
 PR 09-DEC-1997; 97AU-00000812.  
 XX  
 PA (AUSU ) UNIV AUSTRALIAN NAT.  
 XX  
 PI Freeman CG, Hulett MD, Parish CR, Handorf BJ;  
 XX  
 DR WPI; 1999-312956/26.  
 XX  
 DR N-PSDB; AAX37262.  
 XX  
 PT Polynucleotides encoding mammalian endoglucuronidases, especially  
 PT heparanases, useful to promote wound healing.  
 XX  
 PS Claim 6; Page 87-90; 112pp; English.  
 XX  
 CC The invention relates to nucleic acid sequences that encode heparanase  
 CC enzymes having endoglucuronidase activity. Recombinant heparanases are  
 CC capable of removing the HS side chain from heparan sulfate proteoglycan  
 CC (HSPG). Sulfated oligosaccharides, sulphonates or HSPG can be used to  
 CC inhibit heparanase, this is useful for treatment of a physiological or  
 CC medical condition associated with elevated heparanase activity, such as  
 CC metastasis, angiogenesis, wound healing, angioplasty-induced restenosis,  
 CC arteriosclerosis, atherosclerosis and inflammation. The human, murine and  
 CC rat heparanases can be used to enhance wound healing, especially  
 CC associated with tissue development and repair. The conditions mentioned  
 CC above can be diagnosed using specific antibodies, and also using primers  
 CC and probes specific for the heparanase polynucleotides. Other uses of the  
 CC heparanases include sequencing sulfated molecules such as HSPG. The  
 CC present sequence represents a rat heparanase  
 XX  
 SQ Sequence 380 AA;  
 Query Match 56.8%; Score 1614; DB 2; Length 380;  
 Best Local Similarity 79.7%; Pred. No. 3.2e-151;  
 Matches 303; Conservative 35; Mismatches 42; Indels 0; Gaps 0;  
 QY 164 TYSSRSVDLYTPANCSGDLIFGNALLRTADLQWSSNAQLLDYSSSKGYNISWELG 223  
 DB 1 TYSSRSVDMLYGFACSKRLDLIFGNALLRTDPLRWNSSNAQLLDYSSSKGYNICWELG 60  
 QY 224 NEPNSFLKADIFINGSOUGEDYIOLHKLRKSTPRNAKLYGPDVGGPRRTAKMLKSL 283  
 DB 61 NEPNSFWKAAHISIGLOUGEDFVELHKLQKSAQONALYPBDIGOPGKTVKILRSPL 120  
 QY 284 KAGGEVIDSVTHHHYLANGRTATBEDFLNPVDLIFISSVOKVFQVVESTRPGKKWML 343  
 DB 121 KAGGEVIDSLTHHHYLANGRTATBEDFLNPVDLIFISSVOKILKTKMTGCKYWLGE 180  
 QY 344 TSSAYGGAPLLSDTFAAGFMWLDKLSARMGIEVVMRQVFGAGNYHLVDENFDPLD 403  
 DB 181 TSSAYGGAPLLSDTFAAGFMWLDKLSAAGIEVVMRQVFGAGNYHLVDENFDPLD 240  
 QY 404 YMLSLFKGLVGTKVLMAVQSGRRKLRYVLIHCTNDNPRYKSGDLTLVAINLHNTKYL 463  
 DB 241 YMLSLFKGLVGPKVLMSRVKGPDSKRLRYVLIHCTNVPRYREGDLTLVAINLHNTKYL 300  
 QY 464 LRLPYPSNKOVDKYLRLPLGPHGLSKSVQNLGLTLKMVDOTLPLMEKPLRPGSSGL 523  
 DB 301 LKLPPEMSPRVDKYLKPFSGSDGLSKSVQNLGLTKMVDOTLPLATKEPLPAGSSLS 360  
 QY 524 LPAPSYSPFVIRNAKVAACI 543  
 DB 361 VPAPSYSPFVIRNAKVAACI 380

```

RESULT 24
AA17084
ID AA17084 standard; protein; 380 AA.
XX
AC AA17084;
XX
DT 21-JUL-1999 (first entry)
XX
DE Mouse heparanase enzyme.
XX
KW Heparanase; endoglucuronidase; heparan sulfate proteoglycan; enzyme;
KW metacastis; angiogenesis; wound healing; angioplasty-induced restenosis;
KW arteriosclerosis; atherosclerosis; inflammation; tissue development;
KW mouse; HSPG.
XX
OS Mus musculus.
XX
PN MO9921975-A1.
XX
PD 06-MAY-1999.
XX
PF 28-OCT-1998; 98MO-AU000898.
XX
PR 28-OCT-1997; 97AU-00000062.
XX
PR 09-DEC-1997; 97AU-00000812.
XX
PA (AUSU) UNIV AUSTRALIAN NAT.
XX
PI Freeman CG, Hulett MD, Parish CR, Hamdorf BJ;
XX
DR MPI; 1999-312956/26.
XX
DR N-PSDB; AAX37261.
XX
PT Polynucleotides encoding mammalian endoglucuronidases, especially
PT heparanases, useful to promote wound healing.
XX
PS Claim 6; Page 82-85; 112pp; English.
XX
CC The invention relates to nucleic acid sequences that encode heparanase
CC enzymes having endoglucuronidase activity. Recombinant heparanases are
CC capable of removing the HS side chain from heparan sulfate proteoglycan
CC (HSPG). Sulfated oligosaccharides, sulphonates or HSPG can be used to
CC inhibit heparanase, this is useful for treatment of a physiological or
CC medical condition associated with elevated heparanase activity, such as
CC metastasis, angiogenesis, wound healing, angioplasty-induced restenosis,
CC arteriosclerosis, atherosclerosis and inflammation. The human, murine and
CC rat heparanases can be used to enhance wound healing, especially
CC associated with tissue development and repair. The conditions mentioned
CC above can be diagnosed using specific antibodies, and also using primers
CC and probes specific for the heparanase polynucleotides. Other uses of the
CC heparanases include sequencing sulfated molecules such as HSPG. The
CC present sequence represents a mouse heparanase
XX
SQ Sequence 380 AA;
XX
Query Match 56.4%; Score 1602; DB 2; Length 380;
Best Local Similarity 78.9%; Pred. No. 5e-150;
Matches 300; Conservative 37; Mismatches 43; Indels 0; Gaps 0;
XX
QY 164 TYSRSSVDVLYTFANGSGDLDFGLNALRLTADLQNNSSNAQLLDYCSKSGYNISWELG 223
DB 1 TYSRSSVDMLYSPAKSCGDLDFGLNALRLTADLQNNSSNAQLLDYCSKSGYNISWELG 60
XX
QY 224 NEPNSFLKADITINSQLEDTYQLHLKSTFKRAKLYGPDVGOFRKTKMLKSL 283
DB 61 NEPNSFWKKAHLIDIGQLGEDEVELKHLQBSAFQNAKYGPDIGOPRKRTYKTLRSFL 120
XX
QY 284 KAGGEYIDSYTMHHYYLNGRTATREDPLNDVLDIFISSVQKVFQVYVESRPPKKWMLGE 343
DB 121 KAGGEYIDSYTMHHYYLNGRTATREDPLNDVLDIFISSVQKLVKTKETTPGKRWLGE 180
XX
QY 344 TSSAYGGAGDLSDTFAAGFMWLDKGLSARWGIEVVMRQVFFGAGNYHLVDENFDPDLP 403

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DB 181 TSSAYGGAGDLSDTFAAGFMWLDKGLSARWGIEVVMRQVFFGAGNYHLVDENFDPDLP 240
QY 404 YWLSLLEFKLVGTGKYLMAVSQSKRRKLRVYLHCNTNTNPRYKEDDLTYAHLNNTKY 463
DB 241 YWLSLLEFKLVGTGKYLMAVSQSKRRKLRVYLHCNTNTNPRYKEDDLTYAHLNNTKY 300
QY 464 LRLPYEPFSNKQVDKYLRLPGPHGLSKSVQNLGLTLKMWDDQTLPPMLKEPLRPSSSLG 523
DB 301 LKVPPLPRKPYDTYLKRSRGPDLSSKSVQNLGLTKMWDDQTLPALTEKPLPAGSALS 360
XX
QY 524 LPAFSYFFVYINAKVAACI 543
DB 361 LPAFSYFFVYINAKVAACI 380
XX
RESULT 25
AA97632
ID AA97632 standard; protein; 592 AA.
XX
AC AA97632;
XX
DT 20-APR-2001 (first entry)
XX
DE Human heparanase, hnhpl, protein sequence.
XX
KW Heparanase; hnhpl; wound healing; angiogenesis; restenosis; scrape;
KW atherosclerosis; inflammation; pulmonary disease; Alzheimer's disease;
KW neurodegenerative disease; Creutzfeldt-Jakob disease; viral infection;
KW gene therapy; human.
XX
OS Homo sapiens.
XX
PN MO200100643-A2.
XX
PD 04-JAN-2001.
XX
PF 19-JUN-2000; 2000MO-IL000358.
XX
PR 25-JUN-1999; 99US-0140801P.
XX
PA (INST-) INSIGHT STRATEGY & MARKETING LTD.
XX
PI Pecker I, Michal I, Itzhaki H;
XX
DR MPI; 2001-137930/14.
XX
DR N-PSDB; AAA91097.
XX
PT New polynucleotides and polypeptides that are distantly homologous to
PT heparanase, useful in wound healing, as well as in gene therapy protocols
PT for angiogenesis, restenosis, atherosclerosis, or inflammation.
XX
PS Claim 10; Fig 1; 67pp; English.
XX
CC This sequence represents a heparanase of the invention. The heparanase
CC DNA and protein sequences are useful in wound healing, angiogenesis,
CC restenosis, atherosclerosis, inflammation, pulmonary disease,
CC neurodegenerative diseases (such as Scrape, Alzheimer's disease, and
CC Creutzfeldt-Jakob disease) or viral infections. The heparanase coding
CC sequence is particularly useful in gene therapy
XX
SQ Sequence 592 AA;
XX
Query Match 40.6%; Score 1154.5; DB 4; Length 592;
Best Local Similarity 43.6%; Pred. No. 3.4e-105;
Matches 250; Conservative 82; Mismatches 189; Indels 53; Gaps 9;
XX
QY 20 PLGPISPGAL-----PRPA-----QAQDVVDLFFTOPLHLVSPS 55
DB 18 PRACIARGLYVALLHLHSLSQADRRPLVDRAGLKEKTLILDVSTKRPVRYVNN 77
XX
QY 56 FLSTVIDANLADTPRFLILGSPKLTARGLSPAYLRFGTGTFLIF---DPKGEST 111

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Db      78 FLSLQDPSIIHD-GWLDPLSSKRLVTLARGLSPAFLFGKRTDPLQONLRNPAKSRG 136
Qy      112 FEERSYWGQVNDI-----CKYGSIPDVEEKLRLLEMPYOQL-LLRHHYOK 158
Db      137 GGEPPDYILKNYEDDIYRSVDALDKQKCKIAQ-HPDVMELOREKAAQMHVLVLLKEQFEN 195
Qy      159 KFNKSTYSRSSVDVLYTFANCGLDLFGNALRLTADLQWNSNAQLLDYCSSKGYNI 218
Db      196 TYSNLLITARSLDKLYNFADCGSLHLIFALNALRRPNNSMNSSALSILKYASASKYNI 255
Qy      219 SWEELGNEPNSFLKKADIFINGSQLGEDYIQLHKLARK-STFNKAKLYGPDVQPRKRYAK 277
Db      256 SWEELGNEPNRYRTMHGRAVNGSQLGKDYIQLKSLQPIRIRYASLYGPNIGRPKNVIA 315
Qy      278 MLKSPFLKAGEVYDSVTMHVYLYNGRTAREDEPLNDVDLFISSVQKQVVESTRPKG 337
Db      316 LLDGFMKAVGSTYDAVTWQHCHYIDGRVVKVMDPLKRLDLTSLDQIRKIQKVNTYTPGK 375
Qy      338 KVMIGETSSAYGGAPLSDTFAAGFMWLDKGLSARMGIEVVMRQVFGAGNYHLVDEN 397
Db      376 KIMLEGVYVTSAGCTNNLSDSYAAGFLMNTLGLMANGSIDVYIRHSFPDHGYNHLVDON 435
Qy      398 FDDLPRYWSLFLFKULVGTIKVLMASVQSKRR-----KLRVYLHCTNTDNPXYKGG 448
Db      436 FNEPLDPYWSLKYKRLIGPKVLAHVHAGLQKRPGRGVIRDKLRIYAHCTNNHNNHYVVG 495
Qy      449 DLTLYAINHNVTKYLRLPYFSPNKQVDKYLRLPLGPHGLSKSVQVNLGLTKMVDQTL 508
Db      496 SITLFTIINHRSRKIKLAGTLRDKLVHGYLLQPYGQEGELSKSVQVNLGQPLVMVDGTL 555
Qy      509 PPLMEKPLRPGSSGLGPAFSYSPFVIRNAKVAAC 542
Db      556 PELKPRPLRAGRTLVIPVTMGFFVKNVNALAC 589

RESULT 26
AAU07424
ID      AAU07424 standard; protein; 592 AA.
AC      AAU07424;
XX      18-DEC-2001 (first entry)
DT      Human heparanase-like protein splice variant #1.
DE      Human, immunosuppressive; antiarthritic; antiheumatic; cyostatic;
KW      antiproliferative; cardiac; vasotropic; cerebroprotective; nootropic;
KW      neuroprotective; antibacterial; virucide; fungicide; ophthalmological;
KW      extracellular matrix; ECM; autoimmune disease; rheumatoid arthritis;
KW      hyperproliferative disorder; neoplasm; cardiovascular disorder;
KW      cardiac arrest; cerebrovascular disorder; cerebral ischaemia; infection;
KW      nervous system disorder; Alzheimer's disease; ocular disorder; sunburn;
KW      wound healing; food additive; heparanase.
XX      Homo sapiens.
OS      Homo sapiens.
PN      WO200179253-A1.
XX      25-OCT-2001.
PD      11-APR-2001; 2001WO-US011643.
PF      18-APR-2000; 2000US-0198123P.
XX      PR      (HUMA-) HUMAN GENOME SCI INC.
XX      PA      (HUMA-) HUMAN GENOME SCI INC.
XX      PI      Flaccella M, Shi Y, Edner R, Ruben SM;
XX      WPI, 2001-611720/70.
XX      DR      N-PSDB; AAS13848.
XX      PT      New nucleic acids encoding extracellular matrix polypeptides, for
PT      diagnosing, treating, preventing or ameliorating human disorders and
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PT      disease, such as, autoimmune, hyperproliferative or cardiovascular
PT      disorders.
XX      PS      Disclosure; Page 14; 308pp; English.
XX      CC      The invention relates to novel isolated polynucleotides (I) encoding
XX      CC      extracellular matrix (ECM) polypeptides. (I) and a polypeptide encoded by
XX      CC      (I) are used to prevent, treat or ameliorate a medical condition in e.g.
XX      CC      humans, mice, rabbits, goats, horses, cats, dogs, chickens or sheep. They
XX      CC      are also used in diagnosing a pathological condition or susceptibility to
XX      CC      a pathological condition. The antibodies to the polypeptides can also be
XX      CC      used in alleviating symptoms associated with the disorders and in
XX      CC      diagnostic immunoassays e.g. radioimmunoassays or enzyme linked
XX      CC      immunosorbant assays (ELISA). Disorders which are diagnosed or treated
XX      CC      include autoimmune diseases e.g. rheumatoid arthritis, hyperproliferative
XX      CC      disorders e.g. neoplasms of the breast or liver, cardiovascular disorders
XX      CC      e.g. cardiac arrest, cerebrovascular disorders e.g. cerebral ischaemia,
XX      CC      anglogenesis, nervous system disorders e.g. Alzheimer's disease,
XX      CC      infections caused by bacteria, viruses and fungi and ocular disorders
XX      CC      e.g. corneal infection. The polypeptides can also be used to aid wound
XX      CC      healing and epithelial cell proliferation, to prevent skin aging due to
XX      CC      sundburn, to maintain organs before transplantation, for supporting cell
XX      CC      culture of primary tissues, to regenerate tissues and in chemotaxis. The
XX      CC      polypeptides can also be used as a food additive or preservative to
XX      CC      increase or decrease storage capabilities. The present sequence
XX      CC      represents the amino acid sequence of human heparanase-like protein,
XX      CC      splice variant #1
XX      SQ      Sequence 592 AA;
XX      Query Match      40.6%; Score 1154.5; DB 4; Length 592;
XX      Best Local Similarity 43.6%; Pred. No. 3.4e-105;
XX      Matches 250; Conservative 82; Mismatches 189; Indels 53; Gaps 9;

Qy      20 PLGPLSPGAL-----PRPA-----QAQDVVDLDFPTQERPLHLVSPS 55
Db      18 PPACIAPAPGYLALILHLHSLSSQAGRRPLPYDRAAGALKEKTLILLDVSTKNPVRNVNEN 77
Qy      56 FLVVTIDANLADPRRLILGSPKRLTARGSPAYLRGKRTDPLF-----DPKKEST 111
Db      78 FLSLQDPSIIHD-GWLDPLSSKRLVTLARGLSPAFLFGKRTDPLQONLRNPAKSRG 136
Qy      112 FEERSYWGQVNDI-----CKYGSIPDVEEKLRLLEMPYOQL-LLRHHYOK 158
Db      137 GGEPPDYILKNYEDDIYRSVDALDKQKCKIAQ-HPDVMELOREKAAQMHVLVLLKEQFEN 195
Qy      159 KFNKSTYSRSSVDVLYTFANCGLDLFGNALRLTADLQWNSNAQLLDYCSSKGYNI 218
Db      196 TYSNLLITARSLDKLYNFADCGSLHLIFALNALRRPNNSMNSSALSILKYASASKYNI 255
Qy      219 SWEELGNEPNSFLKKADIFINGSQLGEDYIQLHKLARK-STFNKAKLYGPDVQPRKRYAK 277
Db      256 SWEELGNEPNRYRTMHGRAVNGSQLGKDYIQLKSLQPIRIRYASLYGPNIGRPKNVIA 315
Qy      278 MLKSPFLKAGEVYDSVTMHVYLYNGRTAREDEPLNDVDLFISSVQKQVVESTRPKG 337
Db      316 LLDGFMKAVGSTYDAVTWQHCHYIDGRVVKVMDPLKRLDLTSLDQIRKIQKVNTYTPGK 375
Qy      338 KVMIGETSSAYGGAPLSDTFAAGFMWLDKGLSARMGIEVVMRQVFGAGNYHLVDEN 397
Db      376 KIMLEGVYVTSAGCTNNLSDSYAAGFLMNTLGLMANGSIDVYIRHSFPDHGYNHLVDON 435
Qy      398 FDDLPRYWSLFLFKULVGTIKVLMASVQSKRR-----KLRVYLHCTNTDNPXYKGG 448
Db      436 FNEPLDPYWSLKYKRLIGPKVLAHVHAGLQKRPGRGVIRDKLRIYAHCTNNHNNHYVVG 495
Qy      449 DLTLYAINHNVTKYLRLPYFSPNKQVDKYLRLPLGPHGLSKSVQVNLGLTKMVDQTL 508
Db      496 SITLFTIINHRSRKIKLAGTLRDKLVHGYLLQPYGQEGELSKSVQVNLGQPLVMVDGTL 555
Qy      509 PPLMEKPLRPGSSGLGPAFSYSPFVIRNAKVAAC 542
Db      556 PELKPRPLRAGRTLVIPVTMGFFVKNVNALAC 589
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RESULT 27  
 AAB81062  
 ID AAB81062 standard; protein; 592 AA.  
 XX  
 AC AAB81062;  
 XX  
 DT 20-JUN-2001 (first entry)  
 XX  
 DE Human Heparanase-2 amino acid sequence.  
 XX  
 KM Heparanase 2; human; endoglyucuronidase; heparan sulphate; metastasis;  
 KM neovascularization; vaccine; autoimmune disorder; blood coagulation; cancer;  
 KM diabetes; ischaemia; sepsis; stroke; cardiovascular; thrombosis.  
 XX  
 OS Homo sapiens.  
 XX  
 FH Key Location/Qualifiers  
 FH Region 156..169  
 FT /label= Immunogenic\_epitope  
 FT Region 249..262  
 FT /label= Immunogenic\_epitope  
 FT Region 505..518  
 FT /label= Immunogenic\_epitope  
 PN MO200121814-A1.  
 XX  
 PD 29-MAR-2001.  
 XX  
 PF 11-SEP-2000; 2000MO-EP008837.  
 XX  
 PR 23-SEP-1999; 99EP-00118805.  
 PR 07-JUL-2000; 2000EP-00114649.  
 XX  
 PA (MERE ) MERCK PATENT GMBH.  
 XX  
 PI Duecker K, Stirrenberg C;  
 XX  
 DR WPI; 2001-308089/32.  
 DR N-PDB; AAF86101.  
 XX  
 PT New heparanase-2 polypeptide useful in diagnosing (the susceptibility of  
 PT a subject to) and as vaccines against e.g. autoimmune disorders,  
 PT cardiovascular disease, cancer, diabetes, ischemia, sepsis, stroke, or  
 PT thrombosis.  
 XX  
 PS Claim 1; Page 42-43; 46pp; English.  
 XX  
 CC This invention relates to a human heparanase-2 protein and the cDNA  
 CC sequence encoding it. Heparanase-2 is a member of the endoglyucuronidase  
 CC family of polypeptides and it degrades heparan sulphate proteoglycans  
 CC HSPGs (ubiquitous macromolecules of cell surfaces, basement membranes and  
 CC the extracellular matrix). HSPGs support the vascular endothelium and  
 CC stabilise the structure of the capillary wall. Heparanases may be  
 CC associated with neovascularization and metastasis related to malignant  
 CC tumour formation. Heparanase-2 polynucleotides and proteins are useful as  
 CC vaccines for inducing an immunological response against autoimmune  
 CC disorders, blood coagulation disorders, cancer, diabetes, ischaemia,  
 CC sepsis, stroke, cardiovascular diseases, or thrombosis, as well as in  
 CC diagnosing (the susceptibility of a subject to) these diseases.  
 CC Heparanase-2 fragments may be used as immunogens to produce antibodies  
 CC immunospecific to the polypeptides, and to identify membrane bound  
 CC soluble receptors, agonists or antagonists that compete with the binding  
 CC of the polypeptide to the receptors. An antibody specific for heparanase-  
 CC 2 can be used in the diagnosis of the above diseases and in isolating or  
 CC identifying clones expressing heparanase-2. The present sequence  
 CC represents heparanase-2. Three regions of heparanase-2 with high  
 CC immunogenicity (immunogenic epitopes) can be used to raise antibodies  
 CC against heparanase-2  
 XX  
 Sequence 592 AA.

Query Match 40.4%; Score 1148.5; DB 4; Length 592;  
 Best Local Similarity 43.4%; Pred. No. 1.4e-104;  
 Matches 249; Conservative 82; Mismatches 190; Indels 53; Gaps 9;  
 QY  
 20 PLGLSPGL-----PRPA-----QAQVVDLDFPTQPLVSS 55  
 18 PRACLAAGALYALLHLSSQAQDRRLPDRAAGLKEKTLILDVSTKNPRTVMEN 77  
 QY 56 FLSTVIDANLATDPRFLILGSPKLTTLARGLSPAVLRFSGRTDPLF----DPKEST 111  
 78 FLSTQLDPSIIHD-GMLDPLSSKRLVTLARGLSPARLFRGGRGTPTFLQNLNRNPKNSG 136  
 DB  
 QY 112 FEERSYQSQVNODI-----CKYGIIPDVEBKRLLEMPYEQI-LLEBNYOK 158  
 137 GGPQDYLLKNYEDDIIVRSQVALDKQCKLIAQ-HRDVMLVQREKAQGMHLVLLKEQFEN 195  
 DB  
 QY 159 KFRNSTYSRSSVDVLYTFPANGSGLLIFGLNALLTADLQNMSSNAQLLDYCSSKGYNI 218  
 196 TYSNLIITARSIDKYNFADCSGLHLIFALNLRPNPNMSSSALSILKYSASKYNI 255  
 QY 219 SWEIAGNEPNSFLKADIFINGSQLGPDYIQLHLRK-STFGNAKLYGPDVGQPRKTKAK 277  
 256 SWEIAGNEPNNYRTMGRAVNSQLGKDYIQLKSLIQPIRTIYSASLYGPNIGRPKNVYA 315  
 QY 278 MKSFLKAGSEVIDSVTHMHYYLNGRTATREDFLNPVDLFISSVQKVFQVESSTRPK 337  
 316 LIDGFVKVAGSTVDVAVTHQCYIDGRVVVQVDFLTRLRLDLSQDIRKIQKVVNTYTRPK 375  
 QY 338 KVMIGETSSAYGGANLSDTFAAGFMWLDKGLSARNGIENVMGQVFFGAGNYLNDEN 397  
 376 KIMLEGVTTSAAGTNNLSDSYAAAGFLMTWMLANOQIIVIHSPFDHGYNLVQON 435  
 QY 398 FPLPDPYMLSLFFKLVGTQKVLMAVSQSKRR-----KLRYVLICTNTDNPYKEG 448  
 436 FNPDPYMLSLYKLLIGKVLAVVAGLQKRPGRGVRIDRLRYAICTNHHNNYVYG 495  
 DB 449 DLTYAINLHNTYKYLRLPYPSNKQVDKYLRLPLGPHGLSKSVQNLGLTKMVDOTL 508  
 496 SITLFTINLHRSRKIKLAGTLRDKLVHQYLLQPGGGLSKSVQNLGQPLMWVDDGTL 555  
 QY 509 PPLMEKPLRPSSSLGIPAFSYFFVIRNAKVAAC 542  
 556 PELKRPPLAAGRTLVIIPVTMGFVYVKNVNALAC 589  
 DB  
 RESULT 28  
 AAB85215  
 ID AAB85215 standard; protein; 592 AA.  
 XX  
 AC AAB85215;  
 XX  
 DT 07-SEP-2001 (first entry)  
 XX  
 DE Heparanase-like protein Hpa2 splice variant #1.  
 XX  
 KM Heparanase; splice variant; homologue; heparanase-like protein; Hpa2;  
 KM cytosolic; neuroprotective; cerebroprotective; immunosuppressive;  
 KM antidiabetic; antiarteriosclerotic; antiinflammatory; antiatheritic; antiasthmatic;  
 KM antidiabetic; antiarteriosclerotic; antiinflammatory; antiatheritic; antiasthmatic;  
 XX  
 OS Homo sapiens.  
 XX  
 FH Key Location/Qualifiers  
 FH MISC-difference 237  
 FT /label= unknown  
 FT /note= "encoded by ANC"  
 PN MO200146392-A2.  
 XX  
 PD 28-JUN-2001.  
 XX  
 PF 21-DEC-2000; 2000MO-GB004963.  
 XX

PR 22-DEC-1999; 99GB-00030392.  
 PR 07-APR-2000; 2000GB-00008713.  
 XX (OXFO-) OXFORD GLYCOSCIENCES UK LTD.  
 PA McKenzie EA, Stamps AC, Terrett JA, Tyson KL;  
 PI WPI: 2001-418056/44.  
 XX N-PSDB; AAB22671.  
 DR Novel homologs of heparanase, present in three splice variants, useful  
 PT for identifying agents that modulate heparanase, useful in the treatment  
 PT and/or prophylaxis of abnormal levels of heparanase.  
 XX  
 PS Claim 1; Fig 1; 97pp; English.  
 XX  
 CC The invention provides a homologue to heparanase which is present in  
 CC three splice variants. The heparanase homologue polypeptide is useful in  
 CC the treatment of a human or non-human animal or for use in diagnosis.  
 CC Vectors comprising the heparanase homologue polynucleotides are useful in  
 CC the transformation or transfection of a prokaryotic or eukaryotic host.  
 CC The modulators of the polypeptide are useful in the manufacture of a  
 CC medicament for the treatment and/or prophylaxis of a condition/disease  
 CC associated with abnormal levels of the heparanase homologue, including  
 CC cancer, central nervous system (CNS) and neurodegenerative diseases,  
 CC cardiovascular diseases such as restenosis following angioplasty and  
 CC atherosclerosis, autoimmune diseases, psoriasis, lupus erythematosus,  
 CC allografts, inflammatory diseases, arthritis, vascular restenosis, tumour  
 CC growth and progression, asthma, Alzheimer's disease, diabetic  
 CC retinopathy, wound healing and inflammation. The polypeptide is also  
 CC useful in diagnosis and research. The present sequence represents the  
 CC amino acid sequence of the largest splice variant of the heparanase-like  
 CC protein Hpa2 of the invention  
 XX  
 SQ Sequence 592 AA;

Query Match

Best Local Similarity 40.4%; Score 1147.5; DB 4; Length 592;

Matches 249; Conservative 82; Mismatches 190; Indels 53; Gaps 9;

QY 20 PLGLPSGAL-----PPA-----QAQDVVDLDFPTQEPPLHVS 55  
 DB 18 PRACLAAPGALYLLALHLHLSLSSQAGDRPLPVDRAAGLKEKTLILDVSTKMPVRTNEN 77  
 QY 56 FLSTVDANLATTPRFLILGSPKLTLAGLSPAYRFGCTYDFLIF---DPKKEST 111  
 DB 78 FLTLQDLPSTIHD-GWIDFLSSKRLVTLARGLSPAFRFGKTDQFQONLSPAKSRG 136  
 QY 112 FEERSVWQSQVNODI-----CKYGSIPDVEEKLRLMEWPQEDL-LLREHYOK 158  
 DB 137 GPGEDVYLKNYEDDIYRSVALDKQKCKIAQ-HPDVMELEQREKAAQMHVLVLEKQFSN 195  
 QY 159 KFNKSTYSSRSVDVLYTFANCSGHDLIFGNALRLTADLQWNSNAOLLDYSSKQYNI 218  
 DB 196 TYGNLITATSLDLKLVNFADCSGLHILFALNALRRNNNSKSSALSILKTSKQYNI 255  
 QY 219 SWEIGNEPNSFLKADIFINGSQIEDYIQLHLKLR-STFKAKLYGPDVGOPRRRTAK 277  
 DB 256 SWEIGNEPNRYRTMGRAVNGSQGKDYIQLKSLQIRIYSRASLYGPNIGRRKQVIA 315  
 QY 278 MKSFLKAGEVLDVYWHYLYNGRTATREDPLNPVDLIFISSVQKVPQVYESTRPGK 337  
 DB 316 LLGDFMKVASTYDAVYWGHCYIDGRVKKWDFLKTLLDLSQIRIKKIVNVTYTPGK 375  
 QY 338 KVMLGTSASVAGGAPLISDTFAAGFMWLDKLGISARMGIEVVMROVFPAGVNYLVNEN 397  
 DB 376 KIMLEGVYVTSAGCTNNLSDSYAAAGFMWLTGLMLANOGIDVYIRHSFPFGHNYLVN 435  
 QY 398 PDLPLDYWLSLLEKLVGTQVLAASVQSSKR-----KLRVLYLCTNTDNPYKEG 448  
 DB 436 FNLPLDYWLSLLEKLVGTQVLAASVQSSKR-----KLRVLYLCTNTDNPYKEG 495  
 QY 449 DLTLYALNINVTYKYLALPFPFSNKQYDKYLRLPLRGHGLSSKSVQNLGTLTKVNDQTL 508

DB 496 SITLFIINLRSRKRIKLAGTLRDKLVHGYLLQPIGQBELKSKSVQNLGTLTKVNDQTL 555  
 QY 509 PLMEKRLPFGSSLGUPAFSYGFFVIRNAKVAAC 542  
 DB 556 PELKPRPLRAGRTLVIPVTMGFFVYKVNALAC 589

RESULT 29

ID AAE18326 standard; protein; 582 AA.

XX AAE18326;

AC 07-MAY-2002 (first entry)

DE Human heparanase-2AB splice variant protein.

KW Human; heparanase-2AB; Hep-2; wound healing; angiogenesis; restenosis;

KW atherosclerosis; neurodegenerative disease; inflammation; protamine;

KW viral infection; autoimmune lesion; renal failure; pancreatic cancer;

XX dystrophic muscular disease; heart disease; gene therapy; enzyme.

OS Homo sapiens.

PN WO200204645-A2.

PD 17-JAN-2002.

PF 12-JUL-2001; 2001WO-EP008094.

PR 12-JUL-2000; 2000EP-00202442.

XX (VLA-) VLAAMS INTERUNIVERSITAIR INST BIOTECHNOG.

PA David G, Duerr J;

PI WPI: 2002-171719/22.

DR N-PSDB; AAD29202.

XX Claim 1; Page 38-40; 54pp; English.

CC The invention relates to human heparanase-2 (Hep-2) polypeptides and  
 CC polynucleotides. Heparanase-2 protein is useful in wound healing,  
 CC angiogenesis, restenosis, atherosclerosis, neurodegenerative diseases,  
 CC inflammation and viral infections, as well as in neutralising plasma  
 CC heparin as a potential replacement of protamine. Antiheparanase-2  
 CC antibodies may be used for immunodetection and diagnosis of  
 CC microvessels, autoimmune lesions, renal failure in biopsy specimens,  
 CC plasma samples and body fluids. Molecules, which can agonise or  
 CC antagonise heparanase 2 catalytic activity may also be used as a  
 CC medicament. Polymorphisms in the polynucleotide sequence are useful in  
 CC the identification of individuals having a predisposition to acquire  
 CC diseases resulting from a increased or decreased expression of their  
 CC activity. Such molecules can be used to treat pancreatic cancer,  
 CC dystrophic muscular diseases and or heart diseases. Polynucleotides of  
 CC the invention are used in gene therapy. The present sequence is human  
 CC heparanase-2AB splice variant protein  
 CC  
 SQ Sequence 582 AA;

Query Match

Best Local Similarity 40.2%; Score 1142.5; DB 5; Length 582;

Matches 249; Conservative 81; Mismatches 191; Indels 53; Gaps 9;

QY 20 PLGLPSGAL-----PPA-----QAQDVVDLDFPTQEPPLHVS 55  
 DB 8 PRACLAAPGALYLLALHLHLSLSSQAGDRPLPVDRAAGLKEKTLILDVSTKMPVRTNEN 67

Qy	56	ELSVITIDALADLPRLILLLGSGKLTARGLSPALRPGSTTDPLIF---- <td>111</td>	111
Db	68	FSLSDQDPsIIND-GWLDfLSSKRLVTLTARGLSPALRfFGKAKADfQfQNLNRPASRG	126
Qy	112	PERRSWQGVQNVODI-----CKKGSfPRPVEEKLRLfEMPVQEOQL-LfREHYCK	158
Db	127	GGRPRDYLLKNVEDDIYRSVDVLDKQKGSCKTAR-HPRVMELEQREKAAQMHVLfLKEQFSN	185
Qy	159	KFKNSTYRSRSHVDVLTfPANCSGLDLIFGLNALRLTADfQMNSSNAQLfLDYCSSKGYNI	218
Db	166	TNSNfLILTARSLDKLVNPADCSGLHLfPALNALRRPNMNSMNSSALSLfKYSASKYNI	245
Qy	219	SWEfLGNBPNSfLKKADfFINGSQfLEDGYfQfLHKLfK-STfFKAKfLGPVQGPfRRKfTAK	277
Db	246	SWEfLGNBPNNRYTMHGfRAVNGSQfQXQDYfQLKSLQfPIRYSPASfLYGPNfGRPRKfVIA	305
Qy	278	MfKSPfLKAQGEVfDSVfTMHNYfLNGRTfATPREDfLNPfDVLDfFfSSVQKVQVNVESTfRPGK	337
Db	306	LfDGFfKfVAGSfTVDAVfTQHCYfIDGKfVVKWMDfLKTfRLfLTDfSDQfRKfQfKVNNTYfTPGK	365
Qy	338	KVWLGETSSAYGGAGfARLSDfPFAAGfEMWfLDKfLGSfARMGfIEVNMfQVfFGAGNYHfLDEN	397
Db	366	KfWfLBEGVfVfTSAQGTNNfLSDSYAAGfLMTfLNTfLGMfLNAQfGfIDVfYfIRfSfFPHGfNHLfVDQfN	425
Qy	398	FPPfLPDYfWfSLfLFPKfLVGTfKVLfMAfSVQGSfKfR-----KfRVYfLHCTfNTNfPRYfKEG	448
Db	426	fPPLPDPYfWfSLfLYKfRLfIGPVLfVHAfGLQfRfKPRPGRfVfIRDKfLRYAHCfTNHfNHNYfVRG	485
Qy	449	DLfTVAINfAHNTfKYfLRLfPYPfSNKOVfDKfLRLPfLGHfGLSKfSVQfLNGfLTMfVNDQfTL	508
Db	486	STfLPLfTfLNNHfRSKfKKfKLfAGTLfRDKfLVHfQfLDPfYQfGfBGLKfSVQfLNGfPLVMDfDGTfL	545
Qy	509	PEfLMEKfPLRPfGSGfLGPfAFSfSPfFVfIRNAfKVAfC	542
Db	546	PEfLKEPRfPLAAGfRTLfVfPVTfMGfFVfVKNVfALAC	579
RESULT 30			
AAy97633			
ID	AAy97633	standard; protein; 538 AA.	
AC	AAy97633;		
DT	20-APR-2001	(first entry)	
DE		Human heparanase, hnhp1 p99 form, protein sequence.	
XX			
XX		Heparanase; hnhp1; wound healing; angiogenesis; reasthenosis; Scrape;	
KW		atherosclerosis; inflammation; pulmonary disease; Alzheimer's disease;	
KW		neurodegenerative disease; Creutzfeldt-Jakob disease; viral infection;	
XX		gene therapy; human.	
OS	Homo sapiens.		
XX			
FH	Key	Location/Qualifiers	
FT	Misc-difference 305		
XX		/note= "encoded by GAC"	
XX			
PN	WO200100643-A2.		
XX			
PD	04-JAN-2001.		
XX			
PF	19-JUN-2000; 2000WO-IL000358.		
XX			
PR	25-JUN-1999; 99US-0140801P.		
XX			
PA	(INSI-) INSIGHT STRATEGY & MARKETING LTD.		
XX			
PI	Pecker I, Michal I, Itzhaki H;		
XX			
WI	WIPI, 2001-137930/14.		
DR	N-PSDB; AAA91098.		
XX			

[illegible]

XV		dys trophic muscular disease; heart disease; gene therapy; enzyme.
XX		
OS	Homo sapiens.	
XX		
PN	MO200204645-A2.	
XX		
PD	17-JAN-2002.	
XX		
PF	12-JUL-2001; 2001WO-EP008094.	
XX		
PR	12-JUL-2000; 2000EP-00202442.	
XX		
PA	(VLAA-) VLAAMS INTERUNIVERSITAIR INST BIOTECHNOG.	
XX		
P1	David G, Duerr J;	
XX		
DR	WPI: 2002-171719/72.	
DR	N-BSDb; AAD29204.	
XX		
PT	Heparanase-2 polypeptides and polynucleotides, useful for useful in wound healing, angiogenesis, and for treating restenosis, atherosclerosis, inflammation, neurodegenerative diseases, and viral infections.	
XX		
PS	Disclosure; Page 45-46; 54pp; English.	
XX		
CC	The invention relates to human heparanase-2 (Hep-2) polypeptides and polynucleotides. Heparanase-2 protein is useful in wound healing, angiogenesis, restenosis, atherosclerosis, neurodegenerative diseases, inflammation and viral infections, as well as in neutralising plasma heparin as a potential replacement of protamine. Antiheparanase-2 microbodies may be used for immunodetection and diagnosis of micrometastases, autoimmune lesions, renal failure in biopsy specimens, plasma samples and body fluids. Molecules, which can agonise or antagonise heparanase 2 catalytic activity may also be used as a medicament. Polymorphisms in the polynucleotide sequence are useful in the identification of individuals having a predisposition to acquire diseases resulting from a increased or decreased expression of their activity. Such molecules can be used to treat pancreatic cancer, dys trophic muscular diseases and/or heart diseases. Polynucleotides of the invention are used in gene therapy. The present sequence is human heparanase-2A splice variant protein	
XX		
SQ	Sequence 528 AA;	
	Query Match            38.9%; Score 1106.5; DB 5; Length 528;	
	Best Local Similarity 42.4%; Pred. No. 1.7e+100;	
	Matches 238; Conservative 80; Mismatches 162; Indels 81; Gaps 9;	
OY	20 PLGLSPGAL-----PRPA-----QAQDVVDLDEFTGEPLHLVSPS 55	
	: : :           : : :	
DB	8 PACIACPGALVYALLHLHLSLSQAQDRRPPLVDRAAGKEKTLILDVSTKNPVATVEN 67	
OY	56 FLSTVIIDANLATDPPFLILSLSPKRTIARGLSPAYIAFGCKTDFLP----DPKEST 111	
	: :	
DB	68 FLISQLDLSIIHD-GMLDFLSKSRLVTIARGLSPAFLFSGGRADFLOFOMLRNPAKR- 125	
	:	
OY	112 FEERSYGSOVNQDICIKYSIPDVVEEKLREMPYOQLIREHYOKKKFNSTYSRSSVD 171	
	:	
DB	126 -----GGPQPD-----YLKYIBDA---RSLD 144	
OY	172 VLTYTPANGSGDLIFGLNALARTADLOWNSSNAOLLDDYCSSKGYNISWEIGNEENSPFK 231	
	:	
DB	145 KLYNPADCSGLHLIPALNALRRPNNSWNSSSLTLKYSASKKYNISWEIGNEENRYRT 204	
OY	232 KADITINGSQAGEDTYIQHLKLR-STRNAKLTYPDVNGQPRRKTAALKSLTKAGGEVI 290	
	: :	
DB	205 MHGRAVNSQLEKDVIQKSLQPIRIYSRSASLVYGPNIGRPKNVALLDGMKVAAGSTV 264	
OY	291 DSVTHHHYYLNCRGTATREDFLNPVDLFISSGVKVFOVESTRGPKVMYLGETSAYGG 350	
	:	
DB	265 DAYVTHQHCYTIDERVVKWDFELTRLIDLTDLSQIRKIQRKVVNTYTTGKKIMLEGAVTTAG 324	
OY	351 GAPLLSDTFPAAGFMWLDKLGTSARMGIEVNWQVFEGGANVHLVDENFDLPDYVLLSF 410	

[illegible]



Qy	449	DLLTYAINTLNHWKYLRLPPSPNNKQVDKYLRLPGPHLLSKSVOLNCLTLXWDDTL	500
Dd	438	STLFTIINLRSSKKRLKLAAGTLVDKLVHQTLLQPYGQGLSKSVQLNGQPLVWDDTL	497
Qy	509	PLMLEKPLRPGSSIGLPAFSYSPFVIRNAKVAAC	542
Dd	498	PELKPRFLRAGRTLVIPIPTMGFFVKNVVALAC	531
RESULT 34			
ID	AAM50337	standard; protein; 534 AA.	
XX	AAM50337;		
XX	04-FEB-2002	(first entry)	
XX	Human prepro-heparanase II.		
XX	Heparanase II; human; vulnerary; angiogenesis inhibitor;		
XX	antiinflammatory; cytotactic; therapy; diagnosis.		
XX	Homo sapiens.		
PH	Key	Location/Qualifiers	
FT	Peptide	1..41	
FT	Protein	/label= Signal_peptide	
FT	Protein	42..534	
FT	Protein	/label= Mature_protein	
FT	Protein	/note= "specifically claimed in Claim 23(b)"	
FT	Protein	42..129	
FT	Protein	/label= 8_kDa_subunit	
FT	Protein	/note= "specifically claimed in Claim 23(c)"	
FT	Protein	66..68	
FT	Protein	/note= "O-phosphorylated by protein kinase C"	
FT	Protein	97..99	
FT	Protein	/note= "O-phosphorylated by protein kinase C"	
FT	Protein	98..100	
FT	Protein	/note= "O-phosphorylated by protein kinase C"	
FT	Protein	116	
FT	Protein	/note= "Amidated"	
FT	Protein	162..534	
FT	Protein	/label= 50_kDa_subunit	
FT	Protein	/note= "specifically claimed in Claim 23(f)"	
FT	Protein	217..219	
FT	Protein	/note= "Aen is N-glycosylated"	
FT	Protein	315	
FT	Protein	/note= "Amidated"	
FT	Protein	334..336	
FT	Protein	/note= "Aen is N-glycosylated"	
FT	Protein	449..451	
FT	Protein	/note= "O-phosphorylated by protein kinase C"	
FT	Protein	458..560	
FT	Protein	/note= "O-phosphorylated by protein kinase C"	
PN	WO200181569-A2.		
PD	01-NOV-2001.		
PF	17-APR-2001;	2001WO-US010804.	
PR	20-APR-2000;	2000US-0199072P.	
PA	(PHAA ) PHARMACIA & UPJOHN CO.		
PI	Heinrikson RL, Bienkowski MJ;		
PI	Heinrikson RL, Bienkowski MJ;		
DR	MP1: 2002-041402/05.		
DR	N-ESDB; AAI70705.		
PT	Novel heparanase II polypeptide useful for identifying agents with alter		
PT	heparanase activity and for accelerating wound healing; blocking		

Pt		angiogenesis or inflammation.	
Xx		Claim 23(a); Fig 1; 65pp; English.	
Pt		The present sequence is that of novel human prepro-heparanase II, a	
Xx		paralogue of human heparanase I. The sequence was deduced from isolated	
Pt		cDNA clones obtained by database screening (see A1170705). Heparanase II	
Xx		is a secreted protein that shows 43% identity at the amino acid level to	
Pt		heparanase I. The prepro-protein is processed to remove a 41-amino acid	
Xx		leader peptide, and further processed to remove internal amino acids,	
Pt		yielding the 8 kDa (amino acids 42-129) and 50 kDa (amino acid 162-534)	
Xx		subunits of the heparanase II enzyme. Heparanase I and it have a non-	
Pt		overlapping expression pattern in human tissues and each may serve tissue	
Xx		-specific functional roles. The invention provides heparanase II nucleic	
Pt		acids, vectors, host cells, polypeptides and antibodies. Polypeptides	
Xx		comprising amino acids 42-534, 42-129, 42-161, 130-534 and 162-534 of the	
Pt		present sequence, and nucleic acids encoding them, are specifically	
Xx		claimed. Heparanase II is useful for identifying an agent that alters	
Pt		heparanase activity. Such as agent is used in a claimed method for	
Xx		treating a disease state. Inhibiting heparanase II activity is useful for	
Pt		treating or preventing metastasis, cancer, CNS and neurodegenerative	
Xx		diseases, inflammation and cardiovascular disease such as restenosis	
Pt		following angioplasty and atherosclerosis. Heparanase II is useful for	
Xx		accelerating wound healing, blocking angiogenesis, degradation of heparin	
Pt		and neutralization of heparin's anticoagulant properties during surgery.	
Xx		Heparanase or an agent that enhances heparanase activity can also be	
Pt		infused into the vasculature to block accumulation and diapedesis of	
Xx		neutrophils at sites of inflammation with or without added domains to	
Pt		confer selectivity in delivery	
Xx	SQ	Sequence 534 AA:	
	Query Match	33.0%; Score 936.5; DB 5; Length 534;	
	Best Local Similarity	37.8%; Pred. No. 1.4e+83;	
	Matches	217; Conservative 78; Mismatches 168; Indels 111; Gaps 12;	
OY	20 PLGLPSGAL-----PRPA-----QAQDVVDLDFTOEPRLHLVSPS	55	
Dd	:     :	:	: : :    : : :
OY	18 PPACIAPLAETALLLLHLSSSOAGDRPLPVDRAAGLKETTILLVVSTGNPATVENN	77	
OY	56 ELASTITANLATDTRPFILIGSPKLTARLRASPVIRFGSKTKDPDLIF--DPKKEST	111	
Dd	: : : :   :   :   :   :   :   :   :   :   :   :   :   :   :	:	: :   :   :   :
OY	78 FLISQLDDSIHD-GWLDLFSSKRKLVTLARSLSPAFLPGFKRFDLPOLNLKPAPSRG	136	
OY	112 FEERSYSQQVNODI-----CKTGISIPPDVEEKRLTMPYOEL-LTREHYOK	158	
Dd	: - : - : - : - : - : - : - : - : - : - : - : - : - : - : - : -	:	: :   :   :   :
OY	137 GPGRDYIAKNVEDDIVSDVALDKOGKCIIAQ-HPWMLEIQREKAQMHLVLKEGF--	193	
OY	159 KPKNSTYRSRSSVDLYTFANCSGLDLI FGNALLRTADLOWNSSNAOLLIDYCCKGYNI	218	
Dd	::::  :	:	:
Dd	194 ---SNTVS-----NLTL-----	202	
OY	219 SWEIGNENNSFLKAAADFINSQSUGEDYTQHAKLIK-RSTRKAKLVGPNDVGORRRKTAK	277	
Dd	::::  :	:	: : :::::   :   :
OY	203 -----TEPNNNRYMHGRAVNGSQGGKYIOKSLILOPIRIYRSLSLGPNIGRPKANVIA	257	
OY	278 MLKSFLRKAGEVIDSVTHNYYLNGRTATREDFNPINDVLFISSVOKVPOVESTREGK	337	
Dd	:   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :	:	: : : : :   :   :
OY	258 LLDGEPMKAGSTVAIVNQHCYICGRYYVKWDFLKTRLIDLTSOIQRKIQTAVNTYPFGK	317	
Dd	:   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :	:	: : : : :   :   :
OY	318 KWMLGETSSAAGGAPLISDTFAAFGMWLDKLASBAMGIEEVNRQVFEGANTLVDEN	397	
Dd	:   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :	:	: : : : ~~~~~~
OY	318 KIMLEGVTTTAGGTNNLNDSYAAGFILMNLTMLANGIIDVIVRHSFFDGYNHLVDQN	377	
OY	398 FDPLEPYLSSLFEKLVGSTIKYLMAVSQGSRK-----KAVYLHGCTMTDPPRYEKG	448	
Dd	:   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :	:	: :   :   :   :
OY	378 FNPLPDVYLSLLYKRLIGPKVLAHVAGLQKRRPGRVIRDKLTIYACTNHANNHNAYRG	437	
OY	449 DLTLYAITLHWVTXYLRLPEFSNKQYDKYLRLPGAIPHLLSKSYVOLNGLTKMVDOPTL	508	
Dd	: : : :   :   :   :   :   :   :   :   :   :   :   :   :   :   :	:	: :   :   :   :
OY	438 STLLFTINLHMSRRKKIKLAGTRDLKHQYLQYLOGYEGBLKSYSVOLNGOLFVMVDDCTL	497	
OY	509 PIMEKPLRPGSSSIGLPASFYSFPVINAKVAAC	542	

Db 498 PELKPRPLRAGRTLVIPVMTGFFVKNVALAC 531

## RESULT 35

AA84664 standard; protein; 492 AA.

AC AAB4664;

DT 05-SEP-2001 (first entry)

XX Amino acid sequence of human heparanase-like polypeptide.

XX Human; heparanase-like polypeptide; gene therapy; cancer; angiogenesis;

XX trauma; autoimmune disease; skin disease; cardiovascular disease;

XX nervous system disease; inflammation; arthritis; genitalia;

XX male fertility; erectile dysfunction.

XX Homo sapiens.

XX Key Location/Qualifiers

XX Misc-difference 407 /note= "unspecified residue encoded by KCA"

XX MO200148161-A2.

XX 05-JUL-2001.

XX 18-DEC-2000; 2000MO-EP012909.

XX 23-DEC-1999; 99EP-00125831.

XX (SCHD ) SCHERING AG.

XX Stemeister G, Weiss B;

XX WPI; 2001-418259/44.

XX N-PSDB; AAH28347.

XX Human heparanase-like polynucleotide encoding polypeptides useful for

XX modulating expression of the polypeptide and for treating cancer, cancer

XX metastasis, aberrant angiogenesis by gene therapy technique.

XX Claim 9; Page 30; 30pp; English.

XX The present sequence represents a human heparanase-like polypeptide.

XX Heparanase-like polynucleotides are useful as a source of probes, primers

XX and antisense molecules, and in gene therapy. Heparanase-like

XX polynucleotides and polypeptides are useful for treating several

XX disorders e.g., cancer, cancer metastasis. The oligonucleotides are also

XX useful as diagnostic markers for the diagnosis of disorder such as

XX cancer, cancer metastasis and aberrant angiogenesis. They may also act as

XX diagnostic markers for diagnosis of disorder such as cancer, cancer

XX metastasis and aberrant angiogenesis. The heparanase polypeptides and

XX polynucleotides are also useful for treating trauma, autoimmune diseases,

XX skin diseases, cardiovascular diseases, nervous system diseases, and

XX inflammation including arthritis. Since the polynucleotide is

XX preferentially expressed in male genitalia, modulation of its expression

XX and/or activity may be used for medical intervention in male genitalia

XX function that is male fertility control, erectile dysfunction

XX Sequence 492 AA;

XX Query Match 32.6%; Score 927.5; DB 4; Length 492;

XX Best Local Similarity 39.3%; Pred. No. 9.8e-83;

XX Matches 208; Conservative 74; Mismatches 160; Indels 87; Gaps 10;

XX 41 LDFPTQEPHLVSPFLSVITDANLATDPRFLILSGPKRTARGSPAYLAFGGTKMD 100

XX 21 LDDVSTKNPVTVENFLSLQDPSITHD-GWLDPLSSKRLVLTARGLSPALFPGGKRD 79

XX 101 FLIF---DPKESTFEERSYMQSOVNQDI-----CKYGSIPDVEKRLLEW 144

Db 80 FLQFQRLNRPAPKSRGPGPDYILKNYEDDIVASVDALDKOKGCKIAQ-HPDVMLEOREK 138

QY 145 PYQEOU-LIREHYQKKFKKSTYSRSSVDLYTFPANCSDGLDIFGNALLRTADLQMNSSN 203

Db 139 AAQMHLVLLKEQF-----SNTYS-----NLTL----- 160

QY 204 AQLLDYCSSKGNYSIWELGNEPNSFLKADIFINGSQLEDYIOLHKLARK-STFKNAK 262

Db 161 -----TEPNRYRTMHGAAVNGSQGKXYIOLKSLQPIRYSRAS 200

QY 263 LYGPVGOPRRKTAQKLSFLKAGEVIDSVTHHHYLYNGRTATREDFLNPVLDI FISS 322

Db 201 LYGPNIGRPRKQVIALLDGFMKAGSTVDAYTWQCYIDGRVVKWIDFELKRLDPLSDQ 260

QY 323 VQKRVQVVESTPRKKNVIGETSSAYCGGARPLISTFPAAGFWMLDKLGASAMGETVYWR 382

Db 261 IRIQKVVTYTPRKKIMLEGVVTTSAGGTNNLSYAGFLMLVTLGMLANQGIQDVIR 320

QY 383 QVFPAGNYHLVDENFDPLPDYMLSLFPKLVGTQVLMASVQSKRR-----KLRY 433

Db 321 HGFEDHGYNHLVDQFNPLPDYMLSLYKRLIGRPVLAHVAGLQKRPKRGVINDKLR 380

Db 381 YAHCTNHNHNHYVRSITLFIINLHRXKKIKILAGTLRDKLVHQVLYLOPYGQEGKSKSV 440

QY 494 QLNGULTKRVDDQTLPLMEKRLPSSSLGRLPAPSPFVINAAYAAC 542

Db 441 QLNGPLVNVDDGTLPELKPRPLRAGRTLVIPVMTGFFVKNVALAC 489

## RESULT 36

AA97634 standard; protein; 480 AA.

AC AAY97634;

DT 20-APR-2001 (first entry)

XX Human heparanase, hnhp1 pns form, protein sequence.

XX Heparanase; hnhp1; wound healing; angiogenesis; restenosis; Scrape;

XX atherosclerosis; inflammation; pulmonary disease; Alzheimer's disease;

XX neurodegenerative disease; Creutzfeldt-Jakob disease; viral infection;

XX gene therapy; human.

XX Homo sapiens.

XX MO200100643-A2.

XX 04-JUN-2001.

XX 19-JUN-2000; 2000MO-IL000358.

XX 25-JUN-1999; 99US-0140801P.

XX (INSI-) INSIGHT STRATEGY & MARKETING LTD.

XX Pecker I, Michal I, Itzhaki H;

XX WPI; 2001-137930/14.

XX N-PSDB; AAA91099.

XX New polynucleotides and polypeptides that are distantly homologous to

XX heparanase, useful in wound healing, as well as in gene therapy protocols

XX for angiogenesis, restenosis, atherosclerosis, or inflammation.

XX Claim 10; Page 63; 67pp; English.

XX This sequence represents a heparanase of the invention. The heparanase

XX DNA and protein sequences are useful in wound healing, angiogenesis,

XX restenosis, atherosclerosis, inflammation, pulmonary diseases,



QY	351	GA <sup>1</sup> PLSDPTAAAGMM <sup>1</sup> LDK <sup>1</sup> GLSARMG <sup>1</sup> EVVMM <sup>1</sup> ROVPFGAGY <sup>1</sup> N <sup>1</sup> LVDEKPD <sup>1</sup> PLD <sup>1</sup> PMY <sup>1</sup> SL <sup>1</sup> F	410
Db	277	GN <sup>1</sup> NS <sup>1</sup> SD <sup>1</sup> SYAAG <sup>1</sup> LW <sup>1</sup> MT <sup>1</sup> NT <sup>1</sup> GM <sup>1</sup> LANQ <sup>1</sup> SD <sup>1</sup> IV <sup>1</sup> IR <sup>1</sup> SP <sup>1</sup> FD <sup>1</sup> HG <sup>1</sup> NH <sup>1</sup> LV <sup>1</sup> DQ <sup>1</sup> FN <sup>1</sup> PLD <sup>1</sup> PMY <sup>1</sup> SL <sup>1</sup> LY	336
QY	411	KK <sup>1</sup> LVGT <sup>1</sup> KV <sup>1</sup> MA <sup>1</sup> VSQ <sup>1</sup> SKRR <sup>1</sup> -----KL <sup>1</sup> RV <sup>1</sup> LH <sup>1</sup> CT <sup>1</sup> NT <sup>1</sup> DN <sup>1</sup> PR <sup>1</sup> KEG <sup>1</sup> DL <sup>1</sup> FLY <sup>1</sup> AIN <sup>1</sup> LH <sup>1</sup> NT <sup>1</sup>	461
Db	337	KK <sup>1</sup> LIGPK <sup>1</sup> VLA <sup>1</sup> VH <sup>1</sup> VAG <sup>1</sup> LQ <sup>1</sup> RK <sup>1</sup> PR <sup>1</sup> PR <sup>1</sup> VR <sup>1</sup> RD <sup>1</sup> K <sup>1</sup> RI <sup>1</sup> AH <sup>1</sup> CT <sup>1</sup> NN <sup>1</sup> HN <sup>1</sup> HY <sup>1</sup> VG <sup>1</sup> SL <sup>1</sup> FL <sup>1</sup> IN <sup>1</sup> LH <sup>1</sup> SR	396
QY	462	KY <sup>1</sup> LR <sup>1</sup> LP <sup>1</sup> PS <sup>1</sup> NK <sup>1</sup> QV <sup>1</sup> DKY <sup>1</sup> LIR <sup>1</sup> PG <sup>1</sup> PH <sup>1</sup> GL <sup>1</sup> SK <sup>1</sup> SV <sup>1</sup> LNGL <sup>1</sup> TL <sup>1</sup> KW <sup>1</sup> DD <sup>1</sup> Q <sup>1</sup> TL <sup>1</sup> PL <sup>1</sup> MEK <sup>1</sup> PL <sup>1</sup> RP <sup>1</sup> SS	521
Db	397	KK <sup>1</sup> IK <sup>1</sup> LAG <sup>1</sup> LRD <sup>1</sup> K <sup>1</sup> LV <sup>1</sup> HY <sup>1</sup> LL <sup>1</sup> Q <sup>1</sup> LPY <sup>1</sup> QEG <sup>1</sup> LK <sup>1</sup> SK <sup>1</sup> SV <sup>1</sup> LNQ <sup>1</sup> Q <sup>1</sup> PL <sup>1</sup> W <sup>1</sup> VD <sup>1</sup> GT <sup>1</sup> L <sup>1</sup> PE <sup>1</sup> LK <sup>1</sup> PR <sup>1</sup> PL <sup>1</sup> AG <sup>1</sup> RT	456
QY	522	LG <sup>1</sup> LP <sup>1</sup> AF <sup>1</sup> SY <sup>1</sup> SF <sup>1</sup> VI <sup>1</sup> RNA <sup>1</sup> KVA <sup>1</sup> AC	542
Db	457	LV <sup>1</sup> IP <sup>1</sup> VT <sup>1</sup> MG <sup>1</sup> FV <sup>1</sup> VK <sup>1</sup> VNAL <sup>1</sup> AC	477
RESULT 38			
AAB85217			
ID	AAB85217 standard; protein, 480 AA.		
XX	AAB85217;		
XX	07-SEP-2001 (first entry)		
DE	Heparanase-like protein Hpa2 splice variant #3.		
XX	Heparanase; splice variant; homologue; heparanase-like protein; Hpa2;		
KW	cytostatic; neuroprotective; cerebroprotective; immunosuppressive;		
KM	antipneumatic; nocotropic; antiinflammatory; antiarthritic; antiaesthetic;		
KW	antidiabetic; antitartriosclerotic; vulnerary.		
XX	Homo sapiens.		
OS	Homo sapiens.		
XX	WO200146392-A2.		
PN	28-JUN-2001.		
XX	21-DEC-2000; 2000MO-GB004963.		
PF	22-DEC-1999; 99GB-00030392.		
PR	07-APR-2000; 2000GB-00008713.		
XX	(OXFORD GLYCOSCIENCES UK LTD.		
PA	McKenzie EA, Stamps AC, Terrett JA, Tyson KL;		
XX	WPI; 2001-418056/44.		
DR	N-PSDB; AAH2673.		
PT	Novel homologs of heparanase, present in three splice variants, useful		
PT	for identifying agents that modulate heparanase, useful in the treatment		
XX	and/or prophylaxis of abnormal levels of heparanase.		
PS	Claim 1; Fig 3; 97pp; English.		
CC	The invention provides a homologue to heparanase which is present in		
CC	three splice variants. The heparanase homologue polypeptide is useful in		
CC	the treatment of a human or non-human animal or for use in diagnosis.		
CC	Vectors comprising the heparanase homologue polynucleotides are useful in		
CC	the transformation or transfection of a prokaryotic or eukaryotic host.		
CC	The modulators of the polypeptide are useful in the manufacture of a		
CC	medicament for the treatment and/or prophylaxis of a condition/disease		
CC	associated with abnormal levels of the heparanase homologue, including		
CC	cancer, central nervous system (CNS) and neurodegenerative diseases,		
CC	cardiovascular diseases such as restenosis following angioplasty and		
CC	atherosclerosis, autoimmune diseases, psoriasis, lupus erythematosus,		
CC	allergies, inflammatory diseases, arthritis, vascular restenosis, tumour		
CC	growth and progression, asthma, Alzheimer's disease, diabetic		
CC	retinopathy, wound healing and inflammation. The polypeptide is also		
CC	useful in diagnosis and research. The present sequence represents the		
CC	amino acid sequence of the smallest splice variant of the heparanase-		

CC	Sequence	Score	DB	Length
XX	Query Match	31.6%	897.5	480
XX	Best Local Similarity	36.0%	Pred. No. 9.1e-80;	
XX	Matches	202	Conservative 74; Mismatches 146; Indels 139; Gaps 9	
QY	20 PLGLSPAL-----PRA-----QAQDVVDLDFTEPELHVS	55		
DB	18 PPACIAPKATLALLHLSSSQAGRRPLVDRAAGIKETLLLDVSTGNPRTVVEN	77		
QY	56 FLVSTIDANLTDPRFLILGSPKRLTLAGSPAYLFGSTKTDPLIF-----DPKKEST	111		
DB	78 FLISQIDPSIIND-GWIDFLSSKRLVTLAKGLSTAFRLFSGSKRTDIFLOFOLRNPASKR-	135		
QY	112 FEERSWQSQVNODICKYGISPRVDEKLRLEMPYQEOQLREHYQKKFKNSTYSRSSVD	171		
DB	136 -----GGRPD-----YLLKYE-----	148		
QY	172 VLVTFANCSGLDLFGNALLRATDLQWSSNAQLLDYCSSKGYNTSMELGNPNFLK	231		
DB	149 -----DEPNMYRT	156		
QY	232 KADIFNGSQGEDYIOLHLKLR-STPKAKLYGPDVGQRRRTAKMLKSLKAGGEVI	290		
DB	157 MHGRAVNGSQGKDYIOLKSLLOPRITYSRASYLGPNGRRKNVIALLDGFMKVAGSTV	216		
QY	291 DSVYMHNYLNGRATATEDPLNPVDLFISSVQKRVQVVESTPRGKKWLGETSAYG	350		
DB	217 DAVYMQHCYIDGRVAVKVDPLKTLBLDLSQIRKIQVNTYTPGKKIWLEGVVTSAG	276		
QY	351 GAPLSDTFAAGFMWLDKLGASARMGIEVVMRQVFFGAGNHLVDENPDPLDYLSTLF	410		
DB	277 GTNNLSBSYAGFLMLNTLGTLANOGSDIVIRHSFFBDGYNHLVDQNPRLPDYWLSTLY	336		
QY	411 KGLVGTKVLMAVSQGSKPR-----KLRVYLCTNTDNPXYKEGDLTYALNHNVT	461		
DB	337 KRLIGPKVLAVHVAQLQRKPRPGHVRDKLRIYAHCTNHNNHNVYRGSIITLFIINLHSR	396		
QY	462 KYLLLPYRFSKQDYKLYLRPLGHSGLSSVOLNGLTLMVNDQOTLRLMEKPLRPSS	521		
DB	397 KKITLACTLRDKLVHQYLQYDQEGELKSSVOLNGQRLVWVDGTLPELKRPLRAKRT	456		
QY	522 LGLPAFSYSPFVIRNAKVAAC	542		
DB	457 LVIPVTMGFFVVGNNVALAC	477		
RESULT 39				
XX	AAE18328			
XX	ID AAE18328 standard; protein; 470 AA.			
XX	AC AAE18328;			
XX	DT 07-MAY-2002 (first entry)			
DE	Human heparanase-2B splice variant protein.			
KW	Human; heparanase-2B; Hep-2; wound healing; angiogenesis; restenosis;			
KM	atherosclerosis; neurodegenerative disease; inflammation; protamine;			
XX	viral infection; autoimmune lesion; renal failure; pancreatic cancer;			
XX	dystrophic muscular disease; heart disease; gene therapy; enzyme.			
OS	Homo sapiens.			
XX	XX			
PN	MO200204645-A2.			
PD	17-JAN-2002.			
XX	XX			
PF	12-JUL-2001; 2001WO-EP008094.			
XX	XX			
PR	12-JUL-2000; 2000EP-00202442.			



Matches 196; Conservative 74; Mismatches 148; Indels 117; Gaps 8;

QY 22 GPLSPGALPPRA--QADVDVLDLDFTEOPLHLVSPSPFLSVTIDANLATDPRFLLGSPK 79  
 DB 1 GDRRLPLVDAAGLKEKTELLLDVSTGNPRVTNENNTLSQLDPSIHD--GWLDFLSSKR 59  
 QY 80 LRLRLAGLSAYLYRFGGTCTDPLIF---DPKKESTFEERSYWGQVNDICCKYGIPTP 135  
 DB 60 LVLTLAAGLSAPAFRFGGKRTDPLQFQNLIRNPAKSR-----GGPGPD 100  
 QY 136 VEERKLREWPYQGLLREHYOKKFKKSTYSRSSVDLYTFANCSGDLIFGLNALLRTA 195  
 DB 101 -----YLLKNYE----- 107  
 QY 196 DLQWSSNAQLLDYCSSKGYNISWELNEPNSFLKADIFINGSQLGEDYIQLHKLLRK 255  
 DB 108 -----DEPNRYRTMHGAAVNSQLGKDYIQLKSLDLP 139  
 QY 256 -STFPAKLYGPDVGQPRRTAKMLKSLFKAAGEVIDSVTHHYYLNGRTATREDPLNP 314  
 DB 140 IRIYSRASLYGPNIGRPRKQVIALLDGFMKVGASTVDATVMQHCYIDGRVVKVMDFLKTR 199  
 QY 315 VLDFIFISSVQKVFQVVESTPRGKVMGEGTSSAVGGARLSDTFAGFMWLDKLGISAR 374  
 DB 200 LLDLSDQIRKIKQVAVVTYTPGKKIWLGVVTTSGAGTNNLSVYAGPLMLVTLGLAN 259  
 QY 375 MGIEVVMROVFFGAGNYHLVDENFDPRLPDYMLSLFFKKLVGTAKMLASVOGSKRR----- 429  
 DB 260 OGDIVVIRHSFPDHYGNYHLVDQNFNPLPDYMLSLYKRLGPRKVLAVHAGDLQKRRPGR 319  
 QY 430 ----KLRYLHCTNTDNPRIKXEGDLYLYAINLHNTYKLLPYRPSNKQVDKYLRLPGR 485  
 DB 320 VIRDKRIRYAHCTNNHNNHNVVRSITLFIINLHRSRKKIKLAGTLRDKLVHQYLLDPYGO 379  
 QY 486 HGLLSKSVOLNGLTLKVVDDQTLPLMEKPLRPGSSSLGPAFSYFPIYIRNAKVAAC 542  
 DB 380 EGLKSSVOLNGPLVWVDDGTLPELKRPLRAGRTLVIPVTMGFFVVKVNNALAC 436

RESULT 41  
 AAM50383  
 ID AAM50383 standard; protein: 331 AA.

AC AAM50383;  
 XX  
 DT 18-FEB-2002 (first entry)  
 XX  
 DE Human heparanase II.  
 XX  
 KW Heparanase II; human; cytosolic; vasotrophic; antiarteriosclerotic;  
 KW antiinflammatory; vulnery; immunosuppressive; dermatological; cardiac;  
 KW neutrotic; neuroprotective; cancer; metastasis; vaccine; therapy.  
 XX  
 OS Homo sapiens.  
 XX  
 PN WO200177341-A2.  
 XX  
 PD 18-OCT-2001.  
 XX  
 PF 05-APR-2001; 2001WO-EP003878.  
 XX  
 PR 11-APR-2000; 2000GB-00008912.  
 XX  
 PA (JANC ) JANSSEN PHARM NV.  
 XX  
 PI Smets GMC, Sprengel JJ;  
 XX  
 DR WPI; 2002-041294/05.  
 DR N-PSDB; AAI70845.  
 XX  
 PT Novel nucleic acid molecule encoding heparanase II polypeptide, useful  
 PT for treating cancer, angiogenesis, angioplasty-induced restenosis,  
 PT atherosclerosis, inflammation and arteriosclerosis, and for wound

PT healing.  
 XX  
 PS Claim 1; Fig 2; 56pp; English.  
 XX  
 CC The present sequence is that of novel human heparanase II, as deduced  
 CC from an isolated cDNA clone (see AAI70845). The amino acid sequence shows  
 CC 41% homology to the C-terminal portion of human heparanase I. Tissue  
 CC distribution by means of electronic expression profiling suggested an  
 CC association of heparanase II with tumour tissue. The invention provides  
 CC mammalian (including human) heparanase II polypeptides and  
 CC polynucleotides, as well as vectors and host cells, and a method for  
 CC identifying modulators of heparanase II activity which may be used to  
 CC treat diseases associated with elevated or reduced heparanase activity.  
 CC An enhancer of heparanase II activity can be used in the treatment of  
 CC trauma, autoimmune diseases, skin diseases, cardiovascular diseases and  
 CC diseases of the nervous system, including Alzheimer's disease (all  
 CC claimed). An inhibitor of heparanase II activity can be used to treat  
 CC cancer, cancer metastasis, angiogenesis, angioplasty-induced restenosis,  
 CC atherosclerosis and inflammation, and for promoting wound healing (all  
 CC claimed)

SO Sequence 331 AA;

Query Match 27.7%; Score 788; DB 5; Length 331;  
 Best Local Similarity 46.6%; Pred. No. 3,9e-69;  
 Matches 153; Conservative 53; Mismatches 112; Indels 10; Gaps 2;

QY 225 EPNFPLKKADIFINGSQLGEDYIQLHKLLRK-STFPAKLYGPDVGQPRRTAKMLKSP 283  
 DB 1 EPNRYRTMHGAAVNSQLGKDYIQLKSLDPIRIYSRASLYGPNIGRPRKQVIALLDGFM 60  
 QY 284 KAGEVIDSVTHHYYLNGRTATREDPLNPDLVDFISSVQKVFQVESTPRGKVMGEG 343  
 DB 61 KVAGSTVDATVMQHCYIDGRVVKVMDFLKTRLLDLSQIRIKQKVVNTYTPGKKIWLGE 120  
 QY 344 TSSAVGGARLSDTFPAAFMWLDKLGLSARNGIEVVMROVFFGAGNYHLVDENFDPRL 403  
 DB 121 VVTTSGAGTNNLSDSVYAGPLMLNTGLMANQIDIVIRHSFPDHYGNYHLVDQNFPLPD 180  
 QY 404 YMLSLFFKKLVGTAKMLASVOGSKRR-----KLRYLHCTNTDNPRIKXEGDLYLYA 454  
 DB 181 YMLSLYKRLIGPRKVLAVHAGDLQKRRPRGRYIRDKRLYMACTNNHNNNVVRSITLFI 240  
 QY 455 INLHNTYKLLPYRPSNKQVDKYLRLPRLGPHGLSKSVOLNGLTLKVVDDQTLPLMEK 514  
 DB 241 INLHRSRKKIKLAGTLRDKLVHQYLLQPYGGGLSKSVOLNGPLVWVDDGTLPELKR 300  
 QY 515 PLRPGSSSLGPAFSYFPIYIRNAKVAAC 542  
 DB 301 PLRAGRTLVIPVTMGFFVVKVNNALAC 328

RESULT 42  
 AAB31469  
 ID AAB31469 standard; protein: 488 AA.

AC AAB31469;  
 XX  
 DT 20-APR-2001 (first entry)  
 XX  
 DE Amino acid sequence of a native hyaluronidase designated manillase.  
 XX  
 KW Leech; hyaluronidase; manillase; myocardial disease; infarction;  
 KW cardiovascular disease; thrombotic disorder; tumour; glaucoma;  
 KW acute myocardial ischemia; eye disorder; congestion; circulation;  
 KW angiogenesis; anti-thrombotic; anti-tumour.  
 XX  
 OS Hirudinaria manillensis.  
 OS  
 PN WO200077221-A1.  
 XX  
 PD 21-DEC-2000.  
 XX



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Db      17  SGGFLGAFADSLFS-FKGLMSFVDITSPTLFLLEGLSLGYPFVGGSTFANWLFDF----- 71
Qy      110 STEERESYWGQVNOVODICKYGSIPPDVEEKLRLPEWYQEOQLLREHYQKKFKNSTYSRSS 169
Db      72  --LDENNK-----KDYMAFKDKTPEATITR-RWLFRK-----QNNLKKEFT----- 111
Qy      170 VDVLYTFPANGSGDLIFGALNALT-----DLQMNSSNAQLLLDYCSSKGY--NISW 220
Db      112 -DNLVRLTKGSKMRLLFDLNAEVRITGYEIGKMTSTDSSEAEKLFYCVSKGIGNDIDW 170
Qy      221 ELGNEPNSFLKKADIFINSQGLGEDIYQLHKLRLK-STFKNAKLYGPDVGCQPRKTKAKML 279
Db      171 ELGNEPD--HTSAHNLTEKQVGEDEFKALHKVLEKYEPTLNKGSIVGPDVGW---MGVSXV 224
Qy      280 KSFLLKAGEVIDSVTMHYYLNGRTATREDPLNDVDLFISSVQKVFQVY-----ESTR 334
Db      225 KGLADAGDHYATFTLHQYTFDQNTSDVSTYLDL---TFPKLQQLFDKVKDVLKDSPH 280
Qy      335 PGKKWVLGETSSAYGGAPLLSDTFAAGFMWLDKGLSARMGIEVVMRQVFGAGNYHLV 394
Db      281 KDBPLMLGTTSSGNSGTEDSDRYVSGFLTLDKLGLSANNVKVIRQTITN-GYYGLL 339
Qy      395 DEN-FDPLPDYWLISLFFKLVGTRVLMASVQSGRRKRLRYLHCTNDN---PRYKEGD 449
Db      340 DKQTLPEPNDYMLMHVNSLVGNTVFKVDV-SDPTNKARVYAOCITKNSKHTQSRYYKGS 398
Qy      450 LTLVYALNHVTKYLRLEPYFPSNKQVDKYLRLPLGPHGLSKSVQNLGLTLKAVDDQTLR 509
Db      399 LTIPLALNVGDGDTLTKIG-QYSGKKIYSIILTPREGGQ-LTSQKVLNGLKELNLVSDQ-LP 455
Qy      510 PLMEKPLRPGSSLGRLPAPSYSPFVIRNAKYAAC 542
Db      456 ELNADESK--TSFTLSPKTFGFFVSDANVEAC 486

RESULT 44
AAB31472 standard; protein; 488 AA.
XX
AC      AAB31472;
DT      20-APR-2001 (first entry)
XX
DE      Amino acid sequence of hyaluronidase (manillaase) enzyme clone 31.
XX
KW      Leech: hyaluronidase; manillaase; myocardial disease; infarction;
KW      cardiovascular disease; thrombotic disorder; tumour; glaucoma;
KW      acute myocardial ischemia; eye disorder; congestion; circulation;
KW      angiogenesis; anti-thrombotic; anti-tumour.
XX
XX      Hirudinaria manillaensis.
XX
PN      MO200077221-A1.
PD      21-DEC-2000.
XX
PF      06-JUN-2000; 2000MO-BP005181.
XX
PR      12-JUN-1999; 99EP-00111468.
XX
XX      (MERE ) MERCK PATENT GMBH.
XX
PI      Kordowicz M, Guesow D, Hofmann U, Pacuszk T, Gardas A;
XX
DR      WPI; 2001-071276/08.
XX
DR      N-PADB; AAF24837.
XX
XX      Novel hyaluronidase or manillaase protein isolated from the leech species
PT      Hirudinaria manillaensis having biological activity of hyaluronidase
PT      useful for treating myocardial, cardiovascular and thrombotic disorders.
XX
XX      Claim 13; Fig 10; 72pp; English.
XX

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XX      The present sequence represents a leech hyaluronidase enzyme. The
CC      hyaluronidase protein is designated manillaase. The activity of the
CC      protein is not influenced in its activity by heparin. The protein has a
CC      molecular weight of 53-60 kDa dependent on glycosylation. The enzyme has
CC      four glycoterms. The manillaase polypeptides and polynucleotides are
CC      useful in the manufacture of medicaments for treating myocardial,
CC      cardiovascular and thrombotic disorder and tumours. They are useful in
CC      human or veterinary therapy as dispersal agents, and are useful as an
CC      adjunct of other substances e.g. in the field of chemotherapy of tumours,
CC      for treatment of disorders and diseases with respect to acute myocardial
CC      ischemia or infarction, for treatment of glaucoma and other eye
CC      disorders, to improve the circulation of physiological fluids in the eye,
CC      for treatment of skin and tissue grafts to remove congestion and improve
CC      circulation, as drug delivery system through the skin, membranes, other
CC      tissue, as an agent to remove the hyaluronid acid capsule surrounding
CC      certain pathogenic certain tumours and cancerous tissues, and as an
CC      inhibitor of angiogenesis which can be used as anti-thrombotic and anti-
CC      tumour agent
XX
SQ      Sequence 488 AA;
XX
Query Match      22.6%; Score 642; DB 4; Length 488;
Best Local Similarity 34.3%; Pred. No. 2.5e-54;
Matches 176; Conservative 76; Mismatches 197; Indels 64; Gaps 21;

52  VSPSPFLSVTIDNMLAT--DPRFLILGSPKRLRTLAGLSPAYLRFGTRDPLIFDPKKE 109
16  VSESPFHVAFDASLPSPKPMSFVNITSFKLKLLEGLSPGFRVGGTFTAMWLFDF----- 71
110 STEERESYWGQVNOVODICKYGSIPPDVEEKLRLPEWYQEOQLLREHYQKKFKNSTYSRSS 169
72  --LDENNK-----KDYMAFKDKTPEATITR-RWLFRK-----QNNLKKEFT----- 111
170 VDVLYTFPANGSGDLIFGALNALT-----ADLQMNSSNAQLLLDYCSSKGY--NISW 220
112 -DNLVRLTKGSKMRLLFDLNAEVRITGYEIGKTTSTWSSSEAEKLFYCVSKGIGNDIDW 170
221 ELGNEPNSFLKKADIFINSQGLGEDIYQLHKLRLK-STFKNAKLYGPDVGCQPRKTKAKML 279
171 ELGNEPD--HTSAHNLTEKQVGEDEFKALHKVLEKYEPTLNKGSIVGPDVGW---MGVSXV 224
280 KSFLLKAGEVIDSVTMHYYLNGRTATREDPLNDVDLFISSVQKVFQVY-----ESTR 334
225 KGLADAGDHYATFTLHQYTFDQNTSDVSTYLDL---YFKKLQQLFDKVKDVLKDSPH 280
335 PGKKWVLGETSSAYGGAPLLSDTFAAGFMWLDKGLSARMGIEVVMRQVFGAGNYHLV 394
281 KDBPLMLGTTSSGNSGTEDSDRYVSGFLTLDKLGLSANNVKVIRQTITN-GYYGLL 339
395 DEN-FDPLPDYWLISLFFKLVGTRVLMASVQSGRRKRLRYLHCTNDN---RYKEGD 449
340 DKQTLPEPNDYMLMHVNSLVGNTVFKVDV-GDPTNKARVYAOCITKNSKHTQSRYYKGS 398
450 LTLVYALNHVTKYLRLEPYFPSNKQVDKYLRLPLGPHGLSKSVQNLGLTLKAVDDQTLR 509
399 LTIPLALNVGDGDTLTKIG-QYSGKKIYSIILTPREGGQ-LTSQKVLNGLKELNLVSDQ-LP 455
510 PLMEKPLRPGSSLGRLPAPSYSPFVIRNAKYAAC 542
456 ELNADESK--TSFTLSPKTFGFFVSDANVEAC 486

RESULT 45
AAB31471
ID      AAB31471 standard; protein; 488 AA.
XX
AC      AAB31471;
DT      20-APR-2001 (first entry)
XX
DE      Amino acid sequence of hyaluronidase (manillaase) enzyme clone 31.
XX

```

KW		leech; hyaluronidase; manillae; myocardial disease; infarction;
KV		cardiovascular disease; thrombotic disorder; tumour; glaucoma;
KM		acute myocardial ischemia; eye disorder; congestion; circulation;
KN		angiogenesis; anti-thrombotic; anti-tumour.
XX		
OS	Hirudinaria manillensis.	
XX		
FH	Key	Location/Qualifiers
FT	Misc-difference 450	/label= Val, Met
XX		
WO	200077221-AI.	
PV		
PD	21-DEC-2000.	
XX		
PF	06-JUN-2000; 2000WO-EP005191.	
XX		
PR	12-JUN-1999; 99EP-00111468.	
PA	(MERE ) MERCK PATENT GMBH.	
E1	Kordowicz M, Guessow D, Hofmann U, Pacuska T, Gardas A;	
DR	WPI; 2001-071276/08.	
DR	N-PSDB; AAP24836.	
PT	Novel hyaluronidase or manillaee protein isolated from the leech species	
PT	Hirudinaria manillensis having biological activity of hyaluronidase	
XX	useful for treating myocardial, cardiovascular and thrombotic disorders.	
PS	Claim 13; Fig 9; 72pp; English.	
XX		
CC	The present sequence represents a leech hyaluronidase enzyme. The	
CC	hyaluronidase protein is designated manillae. The activity of the	
CC	protein is not influenced in its activity by heparin. The protein has a	
CC	molecular weight of 53-60 kDa dependent on glycosylation. The enzyme has	
CC	four glycoforms. The manillae polypeptides and polynucleotides are	
CC	useful in the manufacture of medicaments for treating myocardial,	
CC	cardiovascular and thrombotic disorder and tumours. They are useful in	
CC	human or veterinary therapy as dispersal agents, and are useful as an	
CC	adjuvant of other substances e.g. in the field of chemotherapy of tumours,	
CC	for treatment of disorders and diseases with respect to acute myocardial	
CC	ischemia or infarction, for treatment of glaucoma and other eye	
CC	disorders, to improve the circulation of physiological fluids in the eye,	
CC	for treatment of skin and tissue grafts to remove congestion and improve	
CC	circulation, as drug delivery system through the skin, membranes, other	
CC	tissue, as an agent to remove the hyaluronic acid capsule surrounding	
CC	certain pathogenic certain tumours and cancerous tissues, and as an	
CC	inhibitor of angiogenesis which can be used as anti-thrombotic and anti-	
CC	tumour agent	
SQ	Sequence 488 AA;	
XX		
Query Match	21.9%; Score 622; DB 4; Length 488;	
Best Local Similarity	34.3%; Pred. No. 2.4e-52;	
Matches 176; Conservative	75; Mismatches 196; Indels 66; Gaps 22	
OY	53 SPSFLSVITDANLADPRL--ILLGSPKLTARGLSPAYLRGGTKTDFLIDPKKE 109	
DB	:           :           :	
17	SESFVGAVFDASLFSS-PKGLMSFVDITSPKFLLEGISPGYFRGGTFANRLFDPD--- 71	
OY	110 STFERRSWGSOVNODICKYGSIIPDVBEKRLLEMPYOQLLRBHYOKKKFNSTYSRSS 169	
:	:   :   :   :   :   :   :   :   :   :   :   :	
DB	72 --LDENMKM-----KDYYAFKDKTETATITR-RHLRFK-----QNNLKKEIF---- 111	
OY	170 VDVLTYFANCSGLDIIFGNALLRTA-----DLQNMSSNAQLLDDYCSSLXGY--NLSW 220	
:	:   :   :   :   :   :   :   :   :   :   :   :	
DB	112 -DNLVKLTKSGSKMRLLFDLNAEVRFGYEIGKMTSTWDSSSEAEKLFKYCVSNGYGDNDIW 170	
OY	221 ELGNEPNPSFIKAADIFFINGSGGEYIOQLAHKLARK-STFKAKAKLYGPVNGCPRRRTAAWL 279	
:	:   :   :   :   :   :   :   :   :   :   :   :	
DB	171 ELGNEPDP--HTSAHNLTEKVQGVPEKALHKVLEYPTLNKSGSLVPGVG--MGVSIV 224	

QY	280	ISFLKAGEVIDSVMMHHYLLNGTATREDFELNPVLDIEISVQKVPQV-----ESTR 334
DB	225	KGLADEADQHVAFLLTHQYFEGNSTDVSIYDA---TFKKLQOLPKVKVDLKQSPH 280
QY	335	PGKKWTLGETSSAYGGAGPILSDTPAAGFMWLDKGLSARMGIEVMRQVFFGAGNVHLV 334
DB	281	KDKPLMTLETSNGVNSGTEDVSDRYVSGFLITLIDKGLSAAENVKVIIRQTIY-SGYGGL 339
QY	335	DEN-FDPLPDYWLILFKKLVGTVKLMAVSQGSKRKKLEFVYLHCTNTDN---PRYKED 449
DB	340	DKNTLEPNPDYWLIMVHNSIVNGTVEFKVDV-SDPTNKARVYAQCTKTNKSHQTSRYKGS 398
QY	450	LTLYVILNHNVTYKRLRPYPENKQVDKYLRLPGRHGLSSVSQVNLGLTKMVDQTL 509
DB	399	LTFIALNVDGEDVDLTKIG-QYSGKKIYIYLTPEGGQ-LTSOKVLLNGKELNLXSDQ-LP 455
QY	510	PLMEKPLRPGSLGLPAFSYSPFVTRNAKVAAC 542
DB	456	QLNADESK-TSFTLSPKTFGFFVSDANVEAC 486
RESULT 46		
AAM99905		
ID	AAM99905	standard; protein; 214 AA.
XX		
AC	AAM99905;	
XX		
DT	07-JAN-2002	(first entry)
XX		
DE	Human excretory related polypeptide SEQ ID NO 642.	
XX		
KM	Human; nootropic; neuroprotective; cyostatic; dermatological; virucide; immunosuppressive; antinflammatory; anti-HIV; antibacterial; vulnerary; antiparkinsonian; antischizoid; antianaemic; antitachytic; cancer; antithaumatic; hepatotropic; cerebroprotective; antinflammatory; antiallergic; antidiabetic; antitumor; anticonvulsant; antifungal; antiparasitic; cardiant; immune disorder; cardiovascular disorder; neurological disease; infection; nephrotropic; gene therapy; vaccine; excretory system.	
KM		
KM		
OS	Homo sapiens.	
XX		
PN	WO20015313-A2.	
XX		
PD	02-AUG-2001.	
XX		
PF	17-JAN-2001; 2001WO-US001323.	
XX		
XX		
PR	31-JAN-2000; 2000US-0179065P.	
PR	04-FEB-2000; 2000US-0180628P.	
PR	24-FEB-2000; 2000US-0184664P.	
PR	02-MAR-2000; 2000US-0186350P.	
PR	16-MAR-2000; 2000US-0189874P.	
PR	17-MAR-2000; 2000US-019076P.	
PR	18-APR-2000; 2000US-0198123P.	
PR	19-MAY-2000; 2000US-020515P.	
PR	07-JUN-2000; 2000US-0209467P.	
PR	28-JUN-2000; 2000US-0214886P.	
PR	30-JUN-2000; 2000US-0215135P.	
PR	07-JUL-2000; 2000US-0216647P.	
PR	11-JUL-2000; 2000US-0216880P.	
PR	11-JUL-2000; 2000US-0217487P.	
PR	14-JUL-2000; 2000US-0217496P.	
PR	14-JUL-2000; 2000US-0218290P.	
PR	26-JUL-2000; 2000US-0220963P.	
PR	26-JUL-2000; 2000US-0220964P.	
PR	14-AUG-2000; 2000US-0224518P.	
PR	14-AUG-2000; 2000US-0224519P.	
PR	14-AUG-2000; 2000US-0225213P.	
PR	14-AUG-2000; 2000US-0225214P.	
PR	14-AUG-2000; 2000US-0225266P.	
PR	14-AUG-2000; 2000US-0225267P.	
PR	14-AUG-2000; 2000US-0225268P.	

PR	14-AUG-2000	2000US-0225570E
PR	14-AUG-2000	2000US-0225547P
PR	14-AUG-2000	2000US-0225577P
PR	14-AUG-2000	2000US-0225578P
PR	14-AUG-2000	2000US-0225575P
PR	16-AUG-2000	2000US-0226579P
PR	22-AUG-2000	2000US-0226681P
PR	22-AUG-2000	2000US-0226688P
PR	22-AUG-2000	2000US-0227182P
PR	23-AUG-2000	2000US-0227009P
PR	30-AUG-2000	2000US-0228924P
PR	01-SEP-2000	2000US-0229587P
PR	01-SEP-2000	2000US-0229343P
PR	01-SEP-2000	2000US-0229344P
PR	01-SEP-2000	2000US-0229345P
PR	05-SEP-2000	2000US-0229509P
PR	05-SEP-2000	2000US-0229513P
PR	06-SEP-2000	2000US-0230437P
PR	06-SEP-2000	2000US-0230438P
PR	08-SEP-2000	2000US-0231142P
PR	08-SEP-2000	2000US-0231143P
PR	08-SEP-2000	2000US-0231144P
PR	08-SEP-2000	2000US-0231145P
PR	08-SEP-2000	2000US-0231208P
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PR	11-DEC-2000;	2000US-0254078P.
PR	05-JAN-2001;	2001US-0259678P.
XX	(HUMA-) HUMAN GENOME SCI INC.	
PA	Rosen CA, Barash SC, Ruben SM;	
XX	WPI; 2001-465569/50.	
DR	N-PSDB; AA198878.	
XX	Isolated nucleic acid molecule encoding excretory system antigen is used	
PT	in preventing, treating or ameliorating a medical condition.	
XX	Claim 11; SEQ ID NO 642; 574pp + Sequence listing; English.	
XX	The invention relates to novel excretory system related human	
CC	polynucleotides (AA19567-AA19503) and the encoded proteins (AAW99594-	
CC	AAW99913) useful for preventing, treating or ameliorating medical	
CC	conditions e.g. by protein or gene therapy, especially disorders related	
CC	to the excretory system. The genes are isolated from a range of human	
CC	tissues disclosed in the specification. The nucleic acids, proteins,	
CC	antibodies and (ant)agonists are useful in the diagnosis, treatment and	
CC	prevention of: (a) cancer, e.g. breast and ovarian cancer and other	
CC	cancers of the adrenal gland, bone, bone marrow, breast, gastrointestinal	
CC	tract, liver, lung, or urogenital; (b) immune disorders e.g. Addison's	
CC	disease, allergies, autoimmune haemolytic anaemia, autoimmune	
CC	thyroiditis, diabetes mellitus, Crohn's disease, multiple sclerosis,	
CC	rheumatoid arthritis and ulcerative colitis; (c) cardiovascular disorders	
CC	such as myocardial ischaemias; (d) wound healing; (e) neurological	
CC	diseases e.g. cerebral anoxia and epilepsy; and (f) infectious diseases	
CC	such as viral, bacterial, fungal and parasitic infections. Note: The	
CC	sequence data for this patent did not form part of the printed	
CC	specification, but was obtained in electronic format directly from WIPO	
CC	at ftp.wipo.int/pub/published_pct_sequences	
XX	Sequence 214 AA;	

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QY	404	YMLSLFFKKLVGTQTKYLMASVOGSKRR-----KLRYVLTCTTNDPNRYEGDLTLYA	454	
DB	64	YMLSLYVRLRILGPKVLAVHVAAGLQKRRPGRIYRDKLRIYACTHHNHNYYRGSITLFI	123	
QY	455	INLHNVTYRLRIPYFSPMKQVDKYLRLPLGPHGLSKSVQNLGLTLKAVDDQTLPLMEK	514	
DB	124	INLHSRRKKIKIAGTLRDKLVHQYLLQPYGQGLSKSKSVQNLGQPLVMVDDTLPELKPR	183	
QY	515	PLRPGSSGLPFAFSYFVIYRAKYAAC	542	
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AC	AAM43704;			
XX				
DT	24-OCT-2001 (first entry)			
XX				
DE	Human bladder antigen, SEQ ID NO: 98.			
XX				
KW	Human; bladder antigen; cytosolic; immunosuppressive; neutropic;			
KW	neuroprotective; antiviral; antileptogenic; hepatotropic; antidiabetic;			
KW	antiinflammatory; antitumor; vulnerrary; anticomulsant; antibacterial;			
KW	antifungal; antiparasitic; cardiac; gene therapy; cancer;			
KW	immune disorder; cardiovascular disorder; wound healing; infection;			
XX	neurological disease.			
OS	Homo sapiens.			
XX				
XX	WO200159064-A2.			
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PD	16-AUG-2001.			
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PF	17-JAN-2001; 2001WO-US001342.			
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PR 11-DEC-2000; 2000US-0254097P.  
PR 05-JAN-2001; 2001US-0259678P.

(HUMA-) HUMAN GENOME SCI INC.  
PA  
PP  
PI Rosen CA, Barash SC, Ruben SM;  
PX  
PY WPI; 2001-514652/56.  
XX N-PDB; AAI64065.  
XX

Forty five bladder related polynucleotides, useful in the prevention,  
treatment and diagnosis of cancer, immune disorders, cardiovascular  
disorders and neurological diseases.

Claim 11; SEQ ID NO 98; 482pp + Sequence Listing; English.

The invention relates to forty five novel bladder related  
polynucleotides. The polynucleotides and the peptides that they  
encode are useful in the diagnosis, treatment and prevention of: cancer,  
particularly breast and ovarian cancer, and other cancers of the adrenal  
gland, bone, bone marrow, breast, gastrointestinal tract, liver, lung, o  
rogenital system; immune disorders such as Addison's disease, allergies  
autoimmune hemolytic anaemia, autoimmune thyroiditis, diabetes mellitus  
Crohn's disease, multiple sclerosis, rheumatoid arthritis and ulcerative  
colitis; cardiovascular disorders such as myocardial ischemias; wound  
healing; neurological diseases such as cerebral anoxia and epilepsy; and  
infectious diseases such as viral, bacterial, fungal and parasitic  
infections. Numerous examples of each type of disorder are given in the  
specification. The polypeptides can also be used as a food additive or  
preservative to increase or decrease storage capabilities. The  
polynucleotides are useful for chromosome identification. They are also  
useful as probes for diagnosing or treating a disorder related to the  
female reproductive system, particularly breast and/or ovary cancer. The  
present sequence is a novel bladder antigen provided in the invention.  
Note: The sequence data for this patent did not form part of the printed  
specification.  
at ftp.wipo.int/pub/published\_pct\_sequences

Sequence 214 AA;

[illegible]

CC	RESULT 48
XX	AAG65963
XX	ID AAG65963 standard; protein; 156 AA.
AC	
XX	AAG65963;
DT	11-FEB-2002 (first entry)
XX	
DE	Human heparanase-like enzyme polypeptide.
XX	
KW	HLE; heparanase-like enzyme; cytosolic; vasotropic; antiatherosclerotic; antithrombotic; neurotrophic; neuroprotective; virucide; antibacterial; procoagulant; vulnerrary; gene therapy; antisense therapy; human.
KM	
XX	
OS	Homo sapiens.
XX	
PN	WO200172973-A2.
XX	
XX	04-OCT-2001.
PD	
XX	
XX	22-FEB-2001; 2001WO-EP001997.
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XX	
PR	24-FEB-2000; 2000US-0184660P.
PR	27-NOV-2000; 2000US-0252913P.
XX	
PA	(FARB ) BAYER AG.
XX	
PI	Ramakrishnan S;
XX	
DR	WPI; 2001-639227/73.
DR	N-PSDB; AAI67040.
XX	
PT	New human heparanase-like enzyme polypeptide and polynucleotide for regulating extracellular matrix degradation and treating metastatic cancer, atherosclerosis, neurodegenerative diseases and pathogenic infections.
XX	
XX	Claim 1; Fig 6; 82pp; English.
XX	
CC	The invention provides polynucleotides encoding heparanase-like enzyme (HLE) polypeptides. The HLE polypeptides can be expressed by standard recombinant methodology. The HLE modulators are useful for regulating extracellular matrix degradation, to suppress metastatic activity of malignant cells, to enhance extracellular matrix degradation during development and to regulate tumour angiogenesis. HLE is useful for regulating degradation of the extracellular matrix for the treatment of various diseases, to develop diagnostic assays for these diseases and to provide new tools for basic research in medicine and biology. HLE is useful for developing new drugs to inhibit tumour cell metastasis, inflammation and autoimmunity, to modulate bioavailability of heparin- binding growth factors, cellular responses to heparin-binding growth



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Qy      434 YLHGTNTDNPTRYKEGDLTLVAINLHNVTKL-----RLPYPF 470
          ||| ||| | : |
Db      122 YAHSK-----GRAGVTLLINLSQDPTVSNGINVLNAESRKKSLDTLKRP 175

```

Qy 471 S---NKQVDKYLRLP---LSPHG--LLSKSVQLNGLTCLKVDDQTLPPLMEKPLRP-GSS 521  
| : | | | | : | : | : | : |  
Db 176 SWISSKASGCLYNKEEYHLTPENGVLRSKMFLNGLSKSLPTATGDPSL-EPVLRSVNSP 234

QY	522	LGLPAFSYSFFVIRNAKVAAC	542
		:       :	:
Db	235	LNVLPLSMSTVLPNFDASAC	255

## RESULT 50

ID AAM24147 standard; protein; 262 AA.

AC AAM24147;

DT 12-OCT-2001 (first entry)

DE Human EST encoded protein SEQ ID NO: 1672.

Human; sheep; pig; cow; fruit fly; yeast; hamster; macaque; horse;

KW diagnostics; forensic test; gene mapping; genetic disorder; biodiversity;

**XX**

OS Homo sapiens.

PN WO200154477-A2.

PD 02-AUG-2001.

PF 25-JAN-2001; 2001WO-US002687.

PR 25-JAN-2000; 2000US-00491404.

PR 03-AUG-2000; 2000US-00631451.

XX

(HYSE-) HYSEQ INC.

Tang YT, Liu C, Zhou P, Qian XB, Wang Z, Chen R, Asundi V; Cao Y, Drmanac RA, Zhang J, Wehrman T;

WPI; 2001-476164/51.  
N-PSDB; AAH98806.

N-PSDB; AAH98806.

Isolated polypeptide for treatment of diseases, diagnostics, raising antibodies and research use.

Claim 20; Page 1122-1123; 1275pp; English.

The present invention provides the protein and coding sequences of novel proteins from a variety of organisms, including human, dog, cat, horse, cow, pig, hamster, monkey, macaque, yeast, bacteria, fruit fly, sea urchin and tomato. These were derived from expressed sequence tags (ESTs) from the organism of interest. They can be used in diagnostics, forensics, gene mapping, identification of mutations, to assess biodiversity and for nutritional purposes. The present sequence is a protein of the invention

**SQ** Sequence 262 AA;

Query Match	9.2%;	Score 261;	DB 4;	Length 262;
Query Similarity	27.6%;	Pred NO 7	2a-17.	
Best Local Similarity				

Best Local Similarity 27.6%; Pred. No. 7, 2e-17;  
Matches 83; Conservative 38; Mismatches 80; Indels 100; Gaps 9;

```
OY      PLGRLPSGAL-----PRPA-----QADVDVLEFTEPRLHVSPS   55
| : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
Db      PRACLAPGALYLALLHLHSLSQSQAQBRRRLPLPDRAAGLKEKTLILDLSTGNPRVTNEN   77

OY      FLVSITIDANLATDPRLLLGSPFKLTARGLSPAYLRFGTGTDFLF----DPKEEST   111
| : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
Db      FLISLDOPDSIINH-GWLDLFSSKRILTARGLSPAFRFFGGKKRDPILOFOMLRPARSRG   136

OY      FEERSYQOSVNODI-----CKYGSIPPDVEKTRLIEWPYEOLLYREHYOKK   159
| : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
Db      GPGGDVYLKNYEEDDIRSDVALDKQKGCXLAQHPOSMELRPPEKAQMHNVLLEGEF--~   193

OY      FKQSTYSRSSVDVLYTFANCSGLDLIFGNALLRTADLDOWNSSNAOLLDDYCCKSGYNIS   219
| : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
Db      L194 --SNTYS-----NLTL-----202

OY      WEIGNEBNSFLKKADI FINGSQAGEDYIOLHKLLRK-STFKNAKYGEDVGOPRKRTAKM   278
| : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
Db      203 ----TEBNNNRTMHGRAVNGSQSKGYIOTKSLDRPIRYTASLYGNIYVRPKNTIAL   258

OY      279 L 279
Db      259 L 259
```

Search completed: September 1, 2004, 18:45:29  
Job time : 142 secs

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